

The



NEW ZEALAND
JOURNAL OF

AGRICULTURE

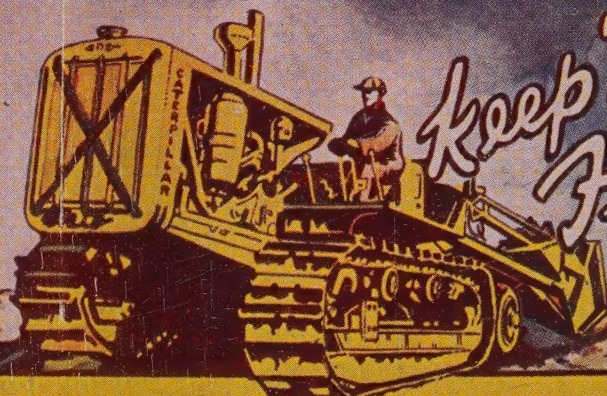
Vol. 66.

WELLINGTON, MARCH 15, 1943.

31 MAY 1943

No. 3.

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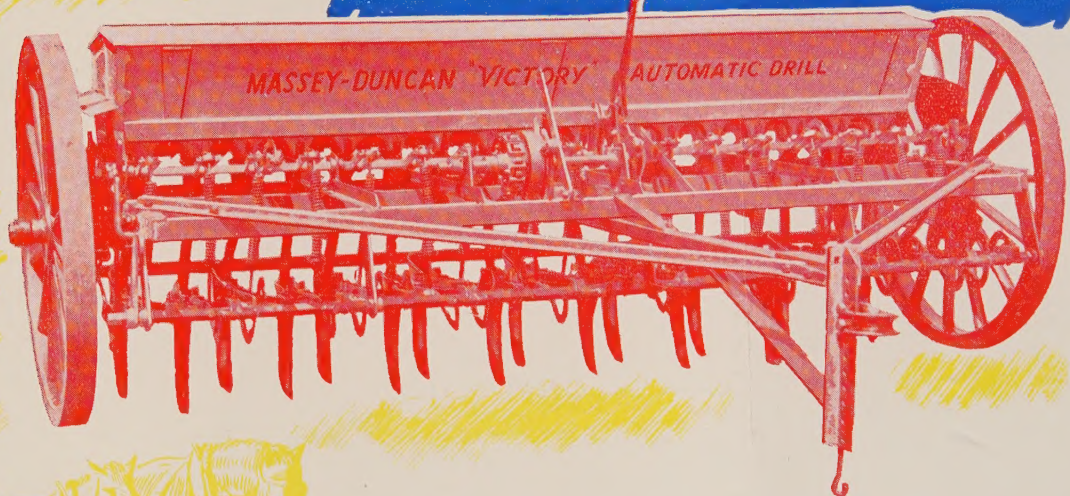
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Extra strength in wheels (14 spokes instead
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The axle is on roller bearings, and has
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strain and gives a positive and steady
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We Supply Everything in Farm Implements



JOURNAL OF AGRICULTURE

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Hon. J. G. Barclay,
Minister of
Agriculture.

FOOD FOR THOUGHT

The object of this short generalisation, shorn of statistics, on trends which will affect our primary produce after the war, is not to decry our produce or our complacency, real or imagined, but to bring thought to bear on our future problems, so that we shall not be caught unprepared when the war aims of the United Nations are implemented. To keep pace with modern trends is not enough, we must forestall them.

THE war aims of the United Nations are the foundation of a just peace and the ensurance of its continuance, despite national prejudice and racial bias among friend and enemy. Broadly, this will mean that each race or nation, irrespective of war status, will become a member of the one family of mankind, each to work for the benefit of the family as a whole, not for itself alone, and to do the work for which it has shown itself best suited. A return to the old free for all struggle for markets with booms, depressions, unemployment, wars, etc., is, of course, unthinkable.

This ultimate ideal will be hard of attainment in our time, but our job is to fit ourselves, as a primary producing country, for our task as a member of the family, and to anticipate our duties so that any radical changes will not take us unawares, or cause us to feel we are not being as well dealt with as we would have liked. It will be a long, trying period of rehabilitation and readjustment, probably as trying as the armed conflict, and without doubt longer and with as many initial reverses.

Old countries do not have our advantage of youth, initiative and realism, so we will start with a distinct superiority in that direction. Our wealth to date, however, is mainly due to our being under the protection of Britain for reasons, racial, financial, and strategic, not, as we are perhaps inclined to think at times, because we are the only country in the world that can

— By —

W. D. ROSS, M.R.C.V.S.
Veterinarian, New Plymouth.

produce lamb, mutton, beef, pork, wool, butter, and cheese, and that all of the very finest. Our produce is good and takes a lot of beating, but it is not yet by any means unbeatable nor indispensable. We can make it unbeatable but not indispensable.

Good Food Essential

All of the nations at present at war have been startled by the amazingly low percentage of 100% fit men for the front line. The same thing alarmed the world in 1914-18, and the League of Nations conducted a painstaking research into the minimum requirements of the then considered essential foods, minerals, vitamins, etc., for optimum health. The nations, postwar, were too busy juggling markets as they had been after the Crimean and Boer Wars to attend to their domestic feeding arrangements, or to pay any really serious attention to what was then, to them, a bunch of food faddists or misguided idealists. If production showed not less than 10% profit employing labour 66% underfed, why worry as long as we held our markets. This thoughtlessness plus the depression again bore its fruit of unfit work-

ers and soldiers in 1939 to make the world nutrition conscious for the third time, and, we hope for good. Now the lesson it seems, accentuated perhaps by Germany's ersatz but scientifically balanced rations, has come to stay.

Communal feeding, following the Russian lead is firmly established in industry in Britain and America, supervised by expert nutritionists. The results have so far justified this revolutionary step beyond the wildest hopes, and people will demand when the war is over that every member of mankind, irrespective of race, colour, or creed, be allowed his fair share of the food required to keep him up to the optimum standard of health and efficiency, so that wars will not again be precipitated by the have-not nations.

Quality of Primary Products

Our place will be beside Canada, North and South America, Africa, Australia, Russia, Holland, Denmark, Poland, the Baltic States, etc., supplying the required primary products to fulfil the nutritional requirements of the world in lamb, mutton, beef, pork, wool, butter, and cheese. But the world will demand the finest, not just what we are prepared to send, we cannot expect any special consideration in the allocation of suppliers in a new world order.

If our beef is just as good but not better than Argentine's or Brazil's, and takes four or five times as long to transport, we will not have cause to complain if we are asked to furnish a better product to make it worth while shipping a greater distance.

We have the cattle, the grass, and the brains to do it, but not in a year or five years; it takes as long to build a good beef carcass as it does to build a battleship even after the plans are finalised. If we had had serious enough competition on an open market we

could have done it in the past. We know the breeds to select, and we know how to feed, dress for export, freeze and chill, and have had good reports on our frozen and chilled product, but we haven't been able to startle the world enough for it to demand nothing but New Zealand chilled or frozen. We will not need to import highly-priced breeding stock, we have better stock to start on now than Scotland had to evolve the present Aberdeen Angus, their policy being to sell the best as they can always breed better. Apart from the unnecessary importation of fresh blood, we cannot compete with Argentine buyers who pay £2,000 to £3,000 for the top bulls in Britain, and then have shipping and quarantine costs above that price. No private breeder can hope to equal these prices and remain solvent in New Zealand, where the demand for highly-priced breeding stock for beef production is severely limited. We have not enough cattle on our runs now, and could double our beef cattle population and still be badly understocked for the best use of our pastures.

Our lamb, wether, and maiden ewe still suffer from our undecidedness as to whether we want lamb or wool, or both.

Wool?

If artificial wool shows the same rate of improvement in the desired quali-

ties for clothing, as it has in the past, it may oust natural wool as artificial silk ousted the silk-worm. The Axis Powers and the United Nations have built industries round the production of artificial wool, and we cannot expect these industries to disappear overnight. On the contrary, they will have to expand to keep pace with rehabilitation and the demands for more and cheaper clothing.

This will result in a still cheaper and better article, and natural wool with its high cost of production and processing will be hard put indeed to keep pace with the development of cheap artificial fibres which have some definite factors of adaptability in their favour. Wool, at one time the produce upon which empires were built, and for lack of which they fell, may have to run a poor second to artificial fibres in this age of plastics.

Casein is at present one of the essentials for artificial wool, so we can at least export the raw material if required, but primarily we should concentrate more on "eye" of meat, leg and shoulder, and not on length of staple, etc.

Bacon

America and Canada, as we see in the news, can send cured bacon in unrefrigerated holds packed round with

cartons of frozen lard on fairly slow convoys to Britain. Necessity has thus bred another innovation which will stay, and we are then under a still heavier disadvantage in the bacon trade when the war is over.

Our pork on the other hand is recognised as being among the best on the world market, so we may have to depend on our purely pork breeds and forget about our bacon ambitions, apart from local consumption, or try to produce a baconer which world markets will demand in preference to Danish and corn fed. That would be an impossible order on an unbiased scheme of allocation or an open market.

The Meat Industry

Bull beef, cull dairy cow, bobby calves, block ewes, and chopper sows may have to be processed here into canned meats, pastes, tinned sausages, meat extracts, dehydrated meats, etc., to get all we can out of them in the way of salvage, or converted into manure, or stock feeds and poultry meals.

Apart from the meatless trend at present deeply concerning the meat industry, and the post-war revulsion to canned meats on the part of returned soldiers, a place for these classes of meats in an unprocessed form cannot be visualised in a post-war order of

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Of Proved Value for COWS, PIGS, POULTRY, HORSES AND SHEEP

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LINSEED BRAN is a valuable food as well as a tonic, and will keep your stock in better health and condition, as is evidenced by the "bloom" it puts on stock and cattle. Those who have been feeding Linseed Bran to dairy cows are more than pleased with the increased yield in milk and butter fat. Most wonderful results on pigs and poultry.

An approximate comparison of Linseed and Ordinary Bran should be somewhat as follows:—

	Oil or Fat.	Protein.	Carbohydrates.
Linseed Bran	14.5%	15%	46%
Ordinary Bran	2.5%	11%	42%

OIL CONTENT 14.5% is very high. This is a highly important food element. Similar Meals at nearly double the price contain not more than about 7½% of Oil. In Linseed Bran there is in every bag an equivalent of about 1½ gallons of Linseed Oil (today worth 21/-). Whereas 1 sack Linseed Bran costs only 10/11. The high content is not a laxative and doesn't scour, but is absorbed in the body as a food.

PRICE: £8/15/- per ton on rail or boat Auckland.

BOOK NOW for March, April, May, June, July. Do not risk being short of summer or winter feed, demand will be heavy. Quantity will be limited **SO BOOK NOW.**

FARMERS' TRADING COMPANY, Auckland and Branches

any lasting merit. However, in a processed form we have large untapped markets in the Pacific, Asia and India.

After this war there will be, as after the last, an immense fleet of naval auxiliary vessels released for conversion into fishing boats of all types, from drifters and trawlers, to floating canneries. The Atlantic and Pacific seaboard will come back into production with renewed vigour and enter into serious competition with meat markets.

Butter v. Margarine

Our butter is faced with ominous competition from margarine, one of the main foods of the lower scaled income group in Britain, and without which working class families would have suffered severer hardships than they did. This margarine can be vitaminised and standardised to fulfil all nutritional requirements, and yet sell cheaper than butter. In taste, colour, texture, and spreadability the better brands are indistinguishable from finest butter. Unless the standard of living of the wage earner is raised 200% he will still have to rely a great deal on margarine.

New Zealand has no cause for alarm, we have milk, animal and vegetable fats, and can make table margarine here in the Southern Pacific saving lengthy transport of coconut oil and animal fats, export both butter and margarine, and make more out of it than we do now, exporting the raw materials for margarine to compete with our own butter.

Another recent war innovation has been the export from New Zealand without refrigeration of a modified form of margarine for the use of armed forces. Perhaps we may yet do as the people of Denmark, eat margarine and export butter.

Cheese

Cheese is a very popular form of cheap protein in Britain and on the Continent, and takes the place of more expensive proteins in the diets of the workers. However, cheese, bread, and beer is not exactly an ideal basal ration, especially in the light of industrial experiments in communal feeding.

Future demands will probably be more in the luxury type Swiss styles, Kraft, gorgonzola, rochefort, camembert, etc. That again should give us no trouble, we have the raw materials, the initiative and the specialists, and they can be safely left to look after the future cheese markets in which

quality not quantity will be the keynote.

Hides

A recent development in plastics has been the manufacture of synthetic soles for soldiers' boots which have successfully undergone rigorous tests.

Leather and hides, however, have already suffered severely from fashion and the irreversible change of cheaper substitutes. A decline of the pelt and hide market appears inevitable at present, but with the expected re-establishment of European leather industries after the war the trend may be

alleviated if raw materials are easily available at reasonable rates.

Trying to accurately foretell future markets with no knowledge, would be, to say the least of it, extremely foolish, but again, we would not be pardoned if we did not try to visualise the future on the evidence given by past and present trends.

Don't

permit ashes from wood fires to be exposed to rain. These contain valuable potash which will be leached into the soil.



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It's well built. It's efficient. It will pump till the cows come home and longer, without attention except for an occasional drop of oil. A MacEwan Pump gives a plentiful supply of water, or, if you want a pump for any other purpose, MacEwans have the best. You needn't take our word without proof; investigate. You will find that MacEwans have a reputation for quality which has been earned through honest claims and real value. Don't hesitate. Write for details now!

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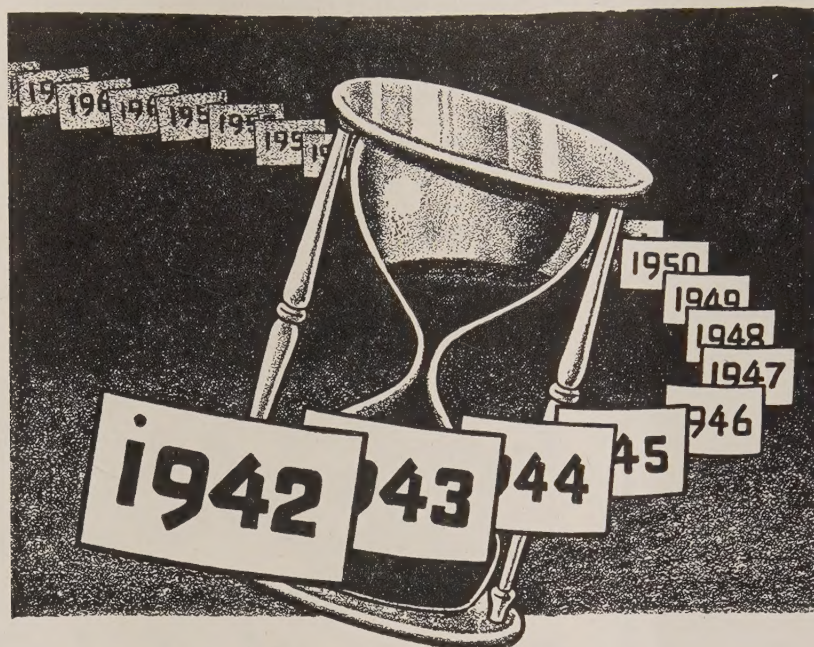
J.A. 15/3/43

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- Many soils of high-rainfall parts of New Zealand lack Lime and contain large quantities of Iron and Alumina (clay), which rob the farmer of about four-fifths of every ton of water-soluble Phosphates spread on these soils; a Basic Slag contains, among other minerals, large quantities of a non-acid chemical compound known as Calcium-Silico- Phosphate which, it is claimed, has the power of unlocking these dormant minerals from the soil. The phosphates of a Basic Slag cannot be locked up by soils because they are already combined in a form easily digested by the root acids as they need them.
- Over 70% of the ash of grass, wood or other organic matter is silica; this is the main reason why humus and compost manures produce such extraordinary growth in plants and trees; properly oxidised Basic Slags, too, contain large quantities of valuable silica—in a form that is SOLUBLE in the natural acids of plants and soil.
- This is the reason why, in the high rainfall districts of 30 inches or more, Basic Slags—even those of low phosphate content—give good results.

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Finely ground and packed 18 bags to the ton, it is delivered f.o.r. Huntly, Waikato. Obtainable from merchants and Dairy Companies or from the Chief Distributors:

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AUCKLAND

New Plymouth



THE SAGA of LINEN FLAX



WAR has been responsible for many things. Among others, it has been responsible for the introduction of new activities—the setting up of new industries on a scale not thought of in peacetime. In no way is this more exemplified in New Zealand than in the establishment of the linen flax industry. Consider our peacetime activities in this direction—a small number of plots each a few feet square being grown as a “feeler” to see whether the crop could be produced—no machinery for the extraction of the fibre. Now turn the pages from 1939 to 1943. We find a flourishing industry:

1,000 farmers growing 23,000 acres of crop.

250 pulling machines harvesting the straw, tractors and trailers in plenty transporting the sheaves.

17 full-size factories employing 1,200 men and women in the processing operations.

200 tons of linen flax fibre being forwarded monthly to the spinning mills of Great Britain.

Our Resources

What has the development of this industry involved? If we go back to June of 1940 we may find lodged among official documents one from the British Government requesting New Zealand to grow linen flax and advising the availability of 500 tons of seed if required. And the reply went back to ship the seed, it would be grown. At that stage our resources consisted of:—

(1) One pulling machine and sufficient machinery for one small scale factory in New Zealand but not assembled.

(2) 500 tons of linen flax seed still in England.

(3) Farm lands in the South Island, the potentialities of which for flax production were unknown and which, in any case, had not been prepared for this crop.

(4) Many persons enthusiastic of the idea of linen flax production, but none with practical experience.

— By —

**J. H. CLARIDGE,
Seed Certification Officer,
Wellington.**

(5) Three months in which to make all the preparations before sowing was due to commence.

The First Step

The truth of the axiom “Where there’s a will there’s a way” was many times demonstrated in the months which followed. A rapid survey by agricultural officers resulted in the selection of certain districts as likely



The Hon. D. G. Sullivan, Minister of Industries and Commerce, whose foresight and drive have been responsible for the development of the linen flax industry to the successful stage it has reached today.

to be suitable for linen flax production, and a canvass of farmers in these districts soon brought to light those with land which could be got ready to sow the seed when it arrived—11,000 acres in all were involved.

Others surveyed and selected suitable factory sites where the first eleven factories were to be erected. Others again gave consideration to machinery. The British Government had offered to make machinery available, but with true independence New Zealand elected to build all the machines locally from the raw material, using as a basis the set of machines already available. Plans followed plans, conversions were made from metric measurement (the original machines were made on the Continent) to British measurement. Some were reversed in operation in order to comply with established servicing conditions in New Zealand.

In addition to the fine effort made by farmers in the preparation of land for the crop, several Government Departments were in full collaboration in the enterprise. The Department of Agriculture was responsible for the growing, the Railways Department undertook the production of machinery, the Public Works Department attended to the erection of buildings, while the Industries and Commerce Department established a Linen Flax Section to take control of the rapidly-growing organisation. Private firms rendered their co-operation to the venture, particularly in the case of one machinery firm which placed a large portion of its staff and factory at the service of the Government for the manufacture of pulling machines.

Difficulties Overcome

It is impossible to relate the difficulties which had to be faced and disposed of in those few short months until the crop was ready for harvesting. The rush of farmers to prepare their land for sowing, doubt as to the arrival of the seed in time, a Dominion-wide appeal for ball bearings to replace those lost by enemy action, the forwarding of pulling belts from Australia by airmail in an endeavour to keep the harvesting up to schedule,

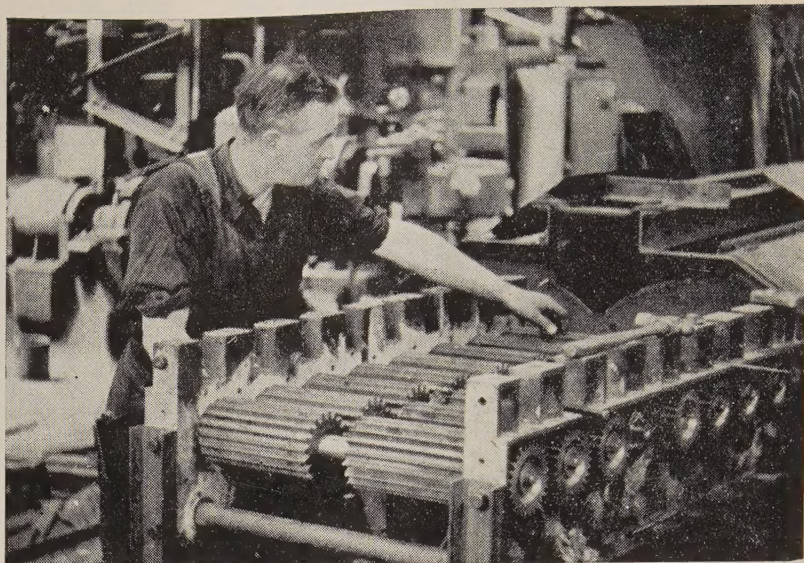
the testing of alternative metals in the construction of complicated scutchers, and the search for suitable boilers for the factories. These were but a few of the problems met and overcome as the scene moved forward. All this took place in the first seven months following receipt of that momentous cable.

By this time, the linen flax crop was in the course of being harvested. Contractors, farmers, and agricultural inspectors wrestled with pulling machines, the like of which they had never imagined, and harvested a crop they had not seen before. Even under these circumstances, their performances were such as to compare with those reported from other countries with similar machines. Then came the stooking, the carting, and stacking work which must be undertaken at the right stage and according to climatic conditions.

In the meantime, the erection of factories was proceeding apace, while the men who were later to manage these factories—men drawn from all walks of life—were receiving their initial introduction to linen flax at a miniature retting plant which had been assembled. The services of a Belgian flax expert had been obtained, and thus there was at least one person who had had some practical experience in the processing of linen flax.

Area Increased

With the factories ready for operation, staffs had to be arranged for and



A complicated portion of the scutcher in process of assembly.

gradually each factory found itself embarked on the task for which it had been created, but there was no rest at this juncture. Britain was calling for still more linen and New Zealand willingly turned her hand to increased production. The aim of 25,000 acres was set for the second season. This meant exploration for further areas, but the experience of past months now proved of value. Six further factories were required. Modifications of these

were made as a result of the practical knowledge now available. Other factories were enlarged to cope with the production of an increased acreage. More pulling machines were manufactured, and gradually it was possible to see ahead the stage when the equipment available would be adequate for the job.

Then other difficulties arose over the horizon. With the increased call up of men for military purposes necessitated towards the end of 1941 labour supplies for the factories became acute. Finally, it was necessary to resort to the employment of female labour as is done in "old world" linen flax production. This type of labour proved eminently satisfactory, but another difficulty arose in its train—suitable living accommodation. Factories had been erected adjacent to growing areas rather than in proximity to towns. This was no great obstacle when ample labour was available, but with the change-over to female workers, came the necessity to erect hostel accommodation at the factories.

Consolidation

With the third year's programme ahead, it was decided that a policy of consolidation was called for, and accordingly, the area of flax to be grown was not increased beyond that of the second year, rather was it planned to strive to tidy up all the loose ends which had become apparent, but which had been pushed aside in the prosecution of the major aim—the production of line flax fibre for Great Britain.

Stocks of seed were building up beyond what could be absorbed in re-sowing, the disposal of refuse from the deseeding operations was increasingly difficult, the accumulation of partly

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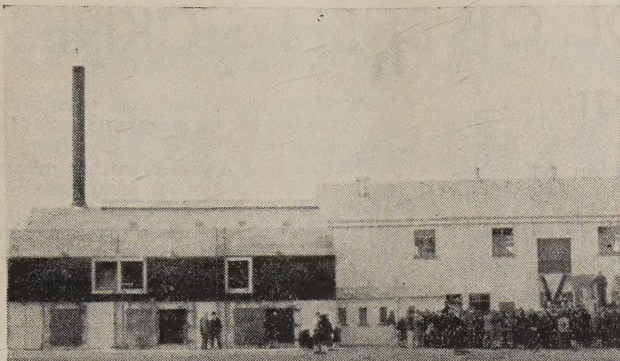
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The official opening of the first linen flax factory in New Zealand. The retting tanks can be seen to the left, above which are the hot water storage tanks.



Considerable handling of linen flax straw is necessary in processing, and the trailer illustrated has been specially designed for the purpose.

processed tow at the factories was becoming an embarrassment, and the industry generally was at the stage where a complete stocktaking was necessary.

Thus, during 1942, plans were entered into for the establishment of a subsidiary organisation to produce linseed oil from the surplus seed. Grinding machinery was erected at the factories to convert the deseeding refuse into a very satisfactory stock meal. The handling of the tow called for the development of an entirely new type of machinery, as this aspect of linen fibre processing had not been satisfactorily solved in other countries. Uses were found for some of the by-products in the preparation of plasterers' and upholsterers' tows, which materials were increasingly difficult to procure elsewhere.

Reports were being received of the quality of the linen fibre shipped to England. These reports were nothing if not in full justification of the decision taken by the Government to establish linen flax production in New Zealand. They also showed, however, directions in which improvements could be made, and the major field of development during the year was in the plans laid and set on foot to increase the efficiency of the factories in regard to both the quality and the quantity of their output.

More knowledge had been gained on the cultural side of linen flax production, and this also was applied in the effort to grow flax straw which could be more efficiently handled at the factories.

Thus we come to the stage where the harvest of the third season of the operations is being gathered in. At present, we have established an industry equal to the peacetime linen flax processing industry in Ireland—twice that of England. We are producing probably 5 per cent. of Britain's requirements of linen flax fibre, replacing at least a portion of that which she has lost under wartime conditions. Of the future, who can say?

Is it to be the establishment of a peacetime industry giving full-time employment to the equivalent of 1,500 persons—the provision of another and desirable crop in the farmers' rotation? Suffice it to say that in this, another of these wartime emergency calls, New Zealand has not been lacking but has faced the task with some success.

Don't

neglect early spring cabbage plants. For slugs and snails use burnt lime freely. It is best applied in the evening.

Cobaltised N.C.A. WORM DRENCH

Is a treatment of proved value for **STOMACH, INTESTINAL, TAPE and WIRE WORMS** in sheep and lambs.

It contains Copper Sulphate, Nicotine Sulphate, Arsenic and Cobalt, and is **TONIC** as well as an **EFFICIENT WORM DESTROYER**.

Price 7/6 for 672 lamb doses or 4/6 for 336.

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SUCCESSFUL CONTROL OF BUSH SICKNESS

RESULTS IN ROTORUA DISTRICT

The following letter was received recently by the Hon. Minister of Agriculture:—

"On a recent day 27 double-deck sheep trucks full to capacity with fat lambs left the Rotorua Railway Station for the meat works.

This is a veritable miracle that has passed almost unnoticed by even those who have lived here some years. As a humble observer of this wonderful achievement of your officers I wish to express my whole-hearted commendation in the highest of terms for their painstaking research undertaken by them over a number of years for the cure of bush sickness.

Hundreds of thousands of acres are, through their efforts, now free of grass pasture deficiency. They have really added another province of healthy cattle and sheep country to the Dominion. A wonderful achievement and a most wonderful asset to the whole population. One need only be gifted with a moderate vision to see the picture of those pumice lands with its full range of pasture grasses producing more than the Waikato.

Some day there will be a monument to their efforts when the full picture is complete.

SOME indication of the development which has taken place in the Rotorua district may be gained by reference to the results being obtained at the Department of Agriculture's experimental farm at Mamaku. It was here that the original pioneering investigation of bush sickness was carried out by Mr. B. C. Aston which resulted in the discovery of the first practical method of controlling bush sickness. This disease is known under different names in many parts of the world, and, prior to Mr. Aston's work, no method of controlling it had been evolved.

Later developments have led to the discovery that limonite, the original material used for controlling the disease, owed its potency to its cobalt content. Today, bush sickness and the related diseases in other parts of the world are efficiently controlled by supplying extra cobalt, either by administering it direct to the animal in the form of licks or drenches or by applying it to the pasture when topdressing.

The Mamaki experimental farm is situated on pumice land where previously it was impossible to rear either sheep or cattle successfully. Last winter, 432 mated ewes were grazed there on 102 acres of pasture, the only sup-

plementary feed being a little hay cut from the grazing area, and a few swedes grown on a small paddock outside this area. From these ewes 468 lambs were marked. A few of them died from causes other than bush sickness but by the middle of February, 454 had been sold fat to the meat works, leaving only three lambs which were not fit for killing. These results were obtained by topdressing with cobalt, which is the procedure recommended by the Department of Agriculture for all cobalt deficient areas where topdressing is the normal practice.

Five ounces of cobalt sulphate should be applied per acre each year. This is equivalent to 1 cwt. of cobaltised superphosphate containing 6 lb. of cobalt sulphate per ton. If farmers are unable to obtain cobaltised superphosphate satisfactory results can be obtained in the prevention of bush sickness by the use of cobaltised lime. In fact, some of the paddocks at Mamaku received their cobalt in this form last year, and the lambs in those paddocks did quite as well as those which had been topdressed with cobaltised superphosphate. Cobaltised lime is not on the market, but it can be easily prepared by the farmer himself. Six pounds of cobalt sulphate should be mixed with one cwt. of lime and then this concentrate should be diluted by mixing with 19 times its volume of lime. It is wise not to attempt to mix more than about a bag at a time, as otherwise the cobalt may not be properly distributed through the lime. The cobaltised lime mixed according to the above formula should be applied at the rate of one cwt. per acre.

In order to ensure that cobalt may be available for farmers who mix their own topdressing licks or drenches, the Department of Agriculture has arranged for the importation of an adequate supply. Farmers who experience difficulty in obtaining their requirements should inform their merchants that cobalt sulphate can be obtained from Imperial Chemical Industries, Limited, Wellington.

Fertiliser Rationing, 1943-44

IN order to allow for re-adjustments in anomalous positions in fertiliser rationing, the Primary Industries Controller has indicated by advertisement in this issue that appeals may be lodged with the Chairmen of Fertiliser Committees between the dates of March 1 and April 30, 1943. Fertiliser granted under the appeal procedure will not be available until next rationing period, i.e., after July 1. The grounds of appeal are defined as follows:—

(1) Where, through misunderstanding or inability the owner of a property did not lodge an application or appeal under the Phosphatic Fertiliser Control Notice, 1941.

(2) Where it can be demonstrated by documentary evidence that the two years ended May 31, 1941, were not a true indication of the average amount of topdressing used.

The basis of appeal as mentioned in clause 1 has been made sufficiently wide to include such cases as ex-servicemen who have taken up land since rationing was brought into force and to cover also owners of properties for which there has been no previous allocation.

Where applications are made in accordance with clause 2 documentary evidence to the effect of the amount of fertiliser purchased during the two years ended May 31, 1939, must be produced by the applicant. In the event of this evidence not accompanying the appeal the application will be dismissed automatically.

The attention of all farmers is drawn to the fact that appeals must be lodged with a Fertiliser Committee prior to April 30, 1943.



Mustard Seed Production In South Canterbury

THE possibility of growing mustard in New Zealand has been considered, and with facilities available in Australia for the manufacture of culinary mustard, the prospects appear quite favourable. Trial areas were sown down throughout New Zealand during last season, and were in some localities harvested with quite good results. Owing to adverse harvesting conditions, yields secured from the four trial areas in South Canterbury were somewhat disappointing. They varied from about 80 lb. to 550 lb. per acre, the average being 260 lb.

Description of Plant

The mustard plant is a crucifer, and its agronomic characteristics resemble those of turnip, rape, and allied species.

By

W. V. HADFIELD,
Instructor in Agriculture,
Timaru.

It is a quick-growing plant, reaching a height of four to five feet about three to four months after sowing. The flower head is somewhat similar to that of wild turnip, being composed of small yellow to lemon coloured florets. The leaves are small, dark green, and hairy.

There are two main types of culinary mustard; the brown and the white. Brown or black mustard as it is sometimes called, has a small brown seed which is distinctly hot to the taste. In the manufacture of commercial mustard, the brown seed is blended with that of white mustard which is white in colour, larger than the brown, and of a milder flavour. Brown mustard is used largely as the basic flavouring material in various condiments.

Brown mustard seed is slower to germinate than the white. It makes slower growth in the early stages, and consequently is later in flowering. During growth the differences between the two varieties are quite apparent. White mustard tends to carry more leaf, and the colour is a paler green than the brown variety. The latter variety has a more indented leaf, and a more prolific growth of hairs. As in the case of the seed, there is also a much sharper taste in the leaf of brown mustard. Seed pods are fewer in the case of the white, and they contain only a few seeds located in the

Although mustard cannot of itself be classed as an essential foodstuff, the present shortage of this popular condiment is being felt in the majority of households in New Zealand. Prior to the war, mustard was imported mainly from Great Britain, and the present shortage, due largely to the lack of shipping space, has probably been further accentuated by the necessary change-over in Great Britain from less important to more vital agricultural production.

centre of the pod. Brown mustard, however, possesses a well-filled pod.

A considerable area of both these varieties is being grown in Canterbury this season, and it is hoped to harvest over 1000 acres. The crops are grown mainly on contract, involving a guarantee that safeguards the grower from direct loss.

Soil Suitability

Mustard can be grown quite successfully on a wide range of soil types, and up to a point does best on the better class of land. From experience it is found to do exceptionally well in South Canterbury on the foothill areas.

This may be due to the fact that in the cooler less humid climate of the foothill region the crop is found to be reasonably free from aphid attack, to which it is particularly susceptible.

Place in Rotation

Mustard appears to be an excellent crop under which pasture may be established, and on the foothill type of country it should be possible to work this crop into a programme where pasture improvement is the general aim, e.g., an old run out pasture may be ploughed up and put into linen flax, and finally sown down with mustard and grass seed. On the better



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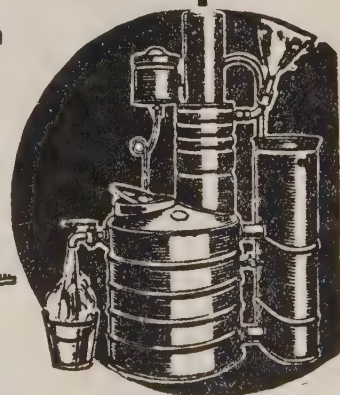
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class of land linen flax may follow a crop of wheat, the ground fallowed over the winter and sown down in pasture with mustard in the spring. Even if the yield of mustard seed should prove to be low, it would be a very poor crop indeed if it did not pay for the sowing down of the pasture. The sowing down of pasture with a crop is not generally recommended, but mustard does not appear to have the same smothering effect on clovers as is experienced with cereal crops, yet it appears to have sufficient growth to control the ryegrass, and thereby allow the clover to get away.

Cultivation

Mustard is a quick-growing crop, and requires soil in good heart and condition. Early ploughing with a winter fallow, and adequate cultiva-

tion to ensure a firm fine consolidated seed bed is the ideal at which to aim. Consolidation is absolutely necessary if a good pasture is to be secured under the crop, and this can be obtained only by frequent harrowing and rolling. The seed should be sown down on a rolled surface and harrowed lightly after sowing.

Time of Sowing

Spring sowing is the general rule overseas, and on the class of land recommended for mustard growing in South Canterbury, spring-sown crops are generally more successful than those sown in the autumn. However, there is no real reason why autumn sowings should not be attempted. On the heavier cropping country it would be reasonable to expect a higher yield, and the autumn sowings should ensure

freedom from aphid attack during early growth.

Rate of Sowing

The general principle involved in securing a mustard seed crop, is to produce a high plant population per acre. This is opposed to overseas methods where the crop is sown in fourteen-inch rows and inter-cultivated, the aim being to get a maximum yield from each plant. However, experience with rape crops in New Zealand has shown that a higher yield can be expected where the seed is sown thickly in seven-inch rows. When sown in this manner, the plants do not branch to the same extent, and ripening is more even. White mustard is sown at the rate of 7 lb. to 9 lb. per acre, whereas brown mustard, owing to its smaller size is sown at the rate of 5 lb. to 6 lb. per acre.

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When sowing down with grass seed for pasture purposes it is preferable to drill the mustard in seven-inch rows, and broadcast the grass seed mixture at the rate of 20 lb to 25 lb. certified perennial ryegrass, 2 lb. certified white clover, and 4 lb. to 5 lb. certified Montgomery red clover. The only satisfactory method of sowing the mustard seed is to mix it with one to two cwt. per acre of reverted super. Although this method may not result in an ideal distribution of the seed, yet it appears to be the only satisfactory method available. If it is desired to harvest clover seed in the season following the mustard harvest, then the mixture should consist of 6 lb to 9lb. mustard, 10 lb. perennial ryegrass, and either 4 lb. to 5 lb. certified Montgomery red clover, or 2 lb. to 3lb. certified white clover. This low seeding of ryegrass should allow the clover to come away in the second year, and yet provide a sufficient cover to prevent weeds and other useless plants.

Harvesting

The crop is harvested with the reaper and binder, but because the seed of brown mustard sheds very easily, the crop must be cut at an immature stage when the pods are changing from green to yellow. The sheaves may then be left to mature in the stook for about three weeks before threshing, although no doubt the best method would be to stack the brown mustard crop and allow the seed to mature in the stack. White mustard, on the other hand, does not shed to the same extent, and may be allowed to mature before it is harvested. At this stage the pods will have become a light brown colour, a proportion of the pods being white. The binder should not be put into the crop before this stage. Because there is a tendency for the seed to become mouldy under dull

or humid conditions, it is advisable to thresh the crop in hot dry weather.

Yields

Yields up to 7 cwt. of seed per acre have been experienced, but a crop yielding 5 cwt. of seed per acre would, under present conditions be considered satisfactory. Generally, the yield of white mustard is higher than that of brown. This is due partly to the larger size of white mustard seed, and also to the fact that a greater loss is experienced in the harvesting of the brown seed.

Conclusion

The growing of mustard is a new venture, and a great deal has yet to be learned about its cultivation in New Zealand. On the one hand there are those factors such as time of sowing

and its place in the rotation; on the other, there is the more complex problem, and one which is generally stressed abroad, of the influence that various soil types and cultured methods have on the quality of the finished product.

Thus it may become essential to confine the growing of mustard for condiment purposes to certain districts and to increase the price to be paid for the produce, because of the high value placed by manufacturers on quality and flavour.

As more experience is gained and more information becomes available, there is every reason to hope for the same marked increase in yields that has been experienced in the growing of rape seed.

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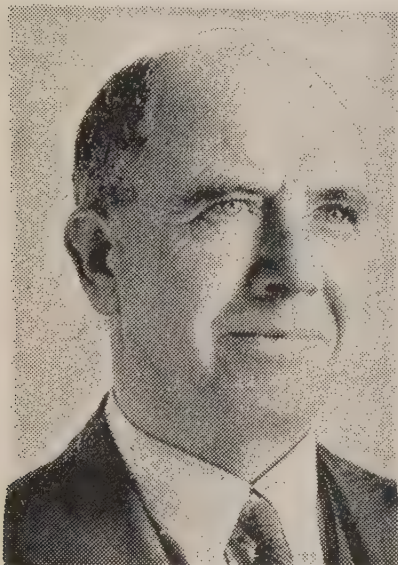
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New Assistant Director-General

THE appointment is announced of Mr. Robert Browne Tennent to the position of Assistant Director-General, Department of Agriculture.



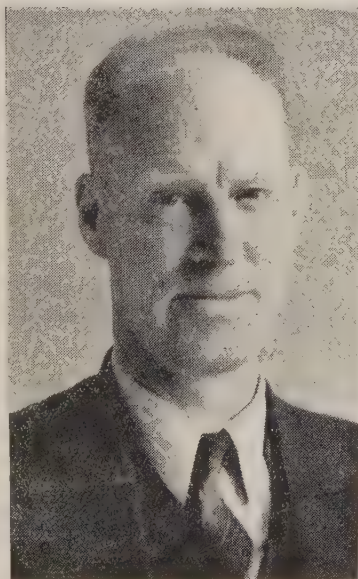
Mr. R. B. Tennent.

Born in Scotland in 1893, Mr. Tennent attended the Queensland Agricultural College in 1914, where he gained diplomas in agriculture and then joined the field staff of the Queensland Department of Agriculture. He saw service in the Great War with the A.I.F. and was discharged from the Army with the rank of Lieutenant. In 1918 Mr. Tennent attended the West of Scotland Dairy School, where he gained the National Dairy Diploma. After the war he returned to the Queensland Department of Agriculture and in 1921 came to New Zealand to join the Department of Agriculture at Dunedin as Instructor in Agriculture. Subsequently he was appointed Fields Superintendent for the Otago-Southland district and in 1934 was promoted to Director of the Fields Division and transferred to Wellington.

Mr. Tennent, who is widely known to farmers, is the author of a number of papers on agriculture, particularly in relation to irrigation, in connection with which matter he visited the U.S.A. He has also been associated with various primary industry activities, including the Plant Research Bureau, the Wheat Research Institute, and the National Council of Primary Production.

Director of the Fields Division

The appointment is also announced of Mr. Percy Walton Smallfield to succeed Mr. Tennent as Director of the Fields Division. Born in 1898, Mr. Smallfield was educated at the Auckland Grammar School, Auckland University College, and Canterbury Agricultural College. He graduated B.Agr.Sc. and joined the Department of Agriculture as Assistant Instructor in Agriculture, Auckland, in February, 1921. He was transferred to the Ruakura Farm of Instruction as Instructor in Charge of the Ruakura Farm Training College in June, 1923, and was appointed Fields Superintendent, Auckland, in May, 1928. Mr. Smallfield graduated M.Agr.Sc. He was engaged in land development work under the Land-Laws Amendment Act, 1929, and developed large areas of scrub land for settlement in Rotorua and in the South and North Auckland districts. Appointed superintendent of the Ruakura Animal Research Station in 1939, he was engaged in animal nutrition and pasture research work. He was appointed superintendent of Services Vegetable Production in May, 1942, and superintended the cultivation of 2000 acres of vegetables for the Armed Forces. He is the author of several articles on farming and farm research work in the Auckland district, grassing of pumice land, and top-dressing and farming in the Auckland Province.



Mr. P. W. Smallfield.

Mr. Smallfield was employed as Army Education Instructor in Agriculture in 1918-19 at Hornchurch and Lark Hill Camps in England.

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Short Rotation Ryegrass

desirability as far as possible of having a degree of isolation of flowering areas of the different types.

Certified Government Stock Seed Available Shortly

ALL New Zealand farmers are fully acquainted with the two species of ryegrass (perennial and Italian) commonly employed in grassland farming in this country. Despite the considerable improvement brought about by the more widespread use of certified and pedigree strains of these species, many farmers also realise that between the two species there is rather a gap. Italian ryegrass produces a considerable bulk of feed in its establishment year, but cannot be

tributed should be used primarily for seed production, though the information which can be gained by farmers during the grazing of areas even intended for the former purpose, will give a good measure of its value.

In view of the great risk of cross-pollination in seeding crops of Short Rotation ryegrass, both with perennial and Italian ryegrass, special attention should be paid firstly to the exclusion of all other ryegrass seed from the Short Rotation ryegrass when sowing for seed production, and secondly, the

Certified Seed

The seed available will be distributed by the Department of Agriculture as Certified Government Stock seed and the usual conditions of ordering and distribution of these seeds (which are summarised in an article on page 163 of this issue) will apply. Areas sown with Certified Government Stock Short Rotation ryegrass will be eligible for certification in the first harvest in the "Mother" class. Eligibility in subsequent seasons will depend on the performance of this ryegrass under wider field conditions.

— By —

J. H. CLARIDGE,

Seed Certification Officer,
Wellington.

expected to last longer than the second year at most. Perennial ryegrass on the other hand has the advantage of permanency but does not produce the same bulk of feed in its early stages as does Italian.

Result of Research

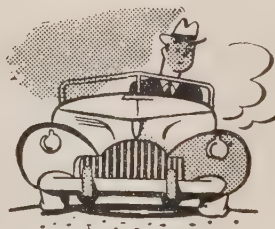
In an endeavour to develop a type of ryegrass, which, while having a degree of permanence greater than Italian, yet has a production ability greater than perennial, considerable investigation and selection work has been undertaken by the Grasslands Division of the Plant Research Bureau in the last few years. The outcome is an intermediate type of ryegrass, to be known under the name of "Short Rotation" ryegrass.

Extensive trials of this new type of ryegrass show that it possesses in good degree the two qualities aimed at by the Grasslands Division in its selection programme. In particular it is considered that Short Rotation ryegrass should meet a need of the arable farmers of Canterbury where pastures are normally broken up after three or four years, and where perennial ryegrass, however select the strain, is inclined to low production in the early part of this period. The full range of usefulness of Short Rotation ryegrass is not yet known, nor can it be fully determined until such time as practical farmers have had an opportunity of measuring its worth.

In the meantime it is desired that the stocks of seed available for dis-

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With the advent of autumn many farmers are manifesting some anxiety concerning the possibility of an outbreak of facial eczema. This article has been prepared with a view to sum-

FACIAL ECZEMA

marising our present knowledge concerning the factors which produce the disease and indicating the means whereby this knowledge can be utilised for preventing disastrous outbreaks.

— By —

J. F. FILMER, Director, Animal Research Division; P. W. SMALLFIELD, Director, Fields Division; and E. BRUCE LEVY, Director, Grasslands Division, Scientific and Industrial Research Department.

IT is generally recognised in North Island districts where facial eczema occurs that an outbreak is liable to happen in any autumn when warm rain follows a hot dry spell. Cooper and Walker (1940) showed that seasons in which bad outbreaks occurred have been characterised by abnormally high air and earth temperatures during the late summer and autumn. This year temperatures have fluctuated considerably. The second half of November was unusually hot, December temperatures varied in different districts, but, in general, were not markedly abnormal; the first half of January was colder, and the second half warmer than normal. During the first half of February temperatures in East Coast districts were again high, but there was not much deviation from normal elsewhere. In most of the East Coast districts, pasture was very dry by the middle of February. A continuation of hot dry weather followed by warm rains might produce an outbreak in these districts, while cold rain in February and March, especially if follow-

ed by dry windy weather, on the other hand, would probably avert trouble this year.

Although no substance has so far been isolated from pasture which is capable of producing liver lesions characteristic of facial eczema, evidence continues to accumulate supporting the idea that in the autumn a liver toxin is produced in high-grade North Island pasture. Minor damage has frequently been detected in livers received from meat works, and which have been taken from lambs showing no clinical symptoms of facial eczema. It therefore seems likely that some toxin is developed every autumn. In most areas this is of no importance as, though minor structural liver damage occurs, almost complete regeneration follows, and liver function is not impaired. In facial eczema years, however, it would appear that a much higher concentration of toxin develops, and this causes severe structural damage with impairment of function, and the consequent well-known skin lesions of facial eczema.

Fortunately, this period of high concentration of toxin appears usually to last for only two to three weeks, but occasionally, two such periods may occur in one season. This probably happened in 1938 when there appeared to be one toxic period in February and another in April. It is well known that in some outbreaks, cases of facial eczema may occur over a much longer period than that mentioned above. This, however, does not necessarily mean that the grass is dangerously toxic during the whole period in which cases occur.

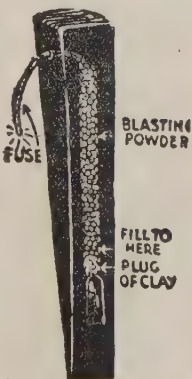
A reference to the 1941 experiment at Wairoa illustrates this very well. Lambs were introduced into the experimental paddock at short intervals from January 6 to April 17. The first cases occurred on March 11, and from then until the beginning of May when the experiment terminated, there were always several affected lambs in the paddock. It should be noted, however, that of 100 lambs introduced before March 12, 26 showed derangement of liver function and 13 developed skin lesions, while of 50 introduced on or after March 18, none showed any impairment of liver function, and only one showed skin lesions which were probably not due to facial eczema. One lamb introduced on March 4 showed symptoms on March 11, and none of

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the lambs introduced as early as March 6 showed symptoms before this. Warm rains fell on March 7, and from then until March 19, the weather remained warm, maximum temperatures ranging from 66 deg. to 78 deg. F. On March 20 very heavy rain fell and the maximum temperature dropped suddenly to 61 deg. F. It seems likely that the period of high toxicity was initiated by the warm rains on March 7 and terminated by the drop in temperature on March 20. The suggestion that the toxic period is usually a short one is further supported by the fact that healthy sheep have, on several occasions, been introduced to paddocks in which others have become affected, immediately after the first cases were reported, and in no case have symptoms developed in the newly-introduced sheep.

Dangerous Pastures

It is, of course, well known that even in bad years all paddocks are not equally dangerous. In general, it may be stated that well-grazed, highly productive pastures, especially those dominant in perennial ryegrass and white clover, are most likely to produce facial eczema, while native hill pasture, irrigated pasture, mature pasture, peat paddocks, and paspalum are relatively safe. Other factors such as soil type,

drainage and aspect may have considerable influence. Most observant farmers now know which of their paddocks are dangerous, and which are relatively safe.

It is probable that in the past too much emphasis has been placed on the effect of dry grazing during the summer, and the sudden change to green feed in the autumn. It now seems likely that the highly toxic pasture which grows in facial eczema periods will produce the disease in any sheep which graze it in sufficient quantities, regardless of their prior treatment.

Preventive Measures

To summarise briefly, it may be stated that a hot dry spell followed by warm autumn rains induces the production of high concentration of liver toxin in pasture. This high concentration usually lasts only for two or three weeks and usually occurs in only well-grazed high-grade perennial rye and white clover dominant pasture. In devising methods of prevention, it is necessary to keep these facts clearly in mind. Obviously, the dominant guiding principle must be that to prevent facial eczema, the consumption of toxic pasture must be reduced to an absolute minimum. The methods of doing this will vary, but, in all cases where stock are grazing in paddocks known to be dangerous, preventive measures must

be adopted immediately the warm rains terminate the hot dry spell. The action to be taken must be dictated by local conditions, but, wherever possible stock should be moved out of dangerous paddocks into those known to be relatively safe, and kept there until the end of the toxic period. This is generally indicated by a change in weather conditions resulting in a hardening of the pasture. Either cold weather, or hot, or windy dry weather usually result in pasture again becoming safe, but, if hot dry weather occurs, it must be remembered that further warm rains may induce another dangerous period.

Until a chemical test for the toxin can be devised, farmers must rely on their own observations in deciding where to move stock during dangerous periods. In general, hill country carrying native grasses is safe, but some hill paddocks do produce the disease, and these should be avoided. Pastures comprised wholly of paspalum are safe, and some farmers in East Coast areas state that very few cases occur in paddocks where ryegrass and paspalum are growing in about equal proportions. Care should be exercised in using these latter paddocks, unless experience has shown them to be safe. Pastures kept green by irrigation during the summer have never been re-

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ported to cause disease in the autumn. Peat paddocks are usually fairly safe. Paddocks which have been leniently grazed in summer resulting in an admixture of rough stalky material with the new autumn growth are much safer than paddocks which have been hard grazed in summer, and which produce a uniform flush in the autumn. Shady slopes are generally safer than warm sunny slopes.

It will be obvious that there is no clear-cut dividing line between dangerous and safe pasture. Probably, only some native hill pastures, pure paspalum and irrigated pastures should be regarded as safe for unrestricted grazing. In all other cases, restriction of intake must be arranged by crowding stock into small paddocks until a concentration is reached which ensures their eating the pasture more quickly than it grows. If only high-grade ryegrass and white clover are available, this concentration should be so great as to ensure that the area is eaten almost bare. Where restricted grazing is practised supplementary feed should be given. This should present little difficulty with cattle which will readily take hay and silage. Sheep

unfortunately do not eat supplementary feed readily in the autumn, and some loss of condition is bound to ensue. It should be remembered, however, that the toxic period is generally of short duration, and sheep recover from starvation more readily than from facial eczema.

It cannot be too strongly emphasised that preventive measures must be taken immediately the warm rains fall, as symptoms have been known to appear within four days of the advent of rain. Moving after the first cases have appeared may not prevent an outbreak developing, as by then a large proportion of lambs may be affected, and skin lesions will follow.

Preventive measures should be continued until there is some fairly marked change in the weather. If a cold wintry change occurs stock can be returned to their normal grazing with safety. A spell of hot or windy dry weather also usually renders the pastures safe, but in these cases care should be taken not to graze the pasture down too hard as this will accentuate the production of toxin after further warm rain ensues.

Summary

1. Facial eczema may be expected to occur if a hot dry spell is succeeded by warm rains.
2. If the summer continues dry, farmers should decide on the preventive measures to be adopted.
3. Immediately warm rains fall, stock should be moved to the safest pasture available.
4. Unless experience indicates that the pasture chosen is absolutely safe, some restriction of grazing should be practised.
5. If only highly topdressed pasture is available, stock should be concentrated to such an extent that the pasture is eaten almost bare, and supplementary feed should be provided.
6. Preventive measures should be conducted until a marked change in weather conditions occurs.

REFERENCE.

Cooper, E. R., and Walker, D. (1940), "Climatic Factors Relating to Outbreaks of Facial Eczema in New Zealand." N.Z.J.Sci. and Tech. 22, 1A, 30.

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"The Bevin Harrow donkey licked the other popular makes of harrows hollow."

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"We are very pleased with the results we are getting, especially from harrowing in dry weather. We harrowed some paddocks last February when it was very dry, and when the rain came the response was very marked."

"There is no doubt you have invented one of the best implements on the market."

"They do a fine job, without ripping up the turf too much. Your harrows are what I have been looking for for years."

"My cows produced 2000 lb. of butterfat more than in the previous season. The proof of the harrow is the work it does—four of my neighbours are now using 'Bevin' Harrows."

"I harrowed 12 acres in the dry weather, and this was the only green paddock I had before the rain came."

"I consider your Harrow, especially in the summer months, will give great results. We used it during the dry spell last season, and when the first rains came the value of the treatment was clearly apparent, and throughout the winter the grass has kept in good heart, and now the spring growth has started the density and quality of the pasture (much of which has been down 40 years) is superior to anything I have had for a number of years."



This illustration is of a 10ft. Bevin behind a Farmall 12. The part of this paddock which has been Bevined is easily discernible.

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The second part is that since my present stocks of Spring Steel left Australia, the Commonwealth Government have granted permission to Messrs. Broken Hill Proprietary, the manufacturers, to increase their prices; so that, consequently, when my present stock is exhausted, I will be reluctantly compelled to raise my prices. However, you won't miss, will you, because you will get in now!

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"The spreading of animal manure in the paddock is just 100 per cent., and not even sheep's droppings can escape; it has got to be seen to be realised."

"All who have seen them at work on my farm have marvelled at the great results obtained."

"I got better winter and early spring growth, and since using the 'Bevin,' my production is up."

"They are the best I have used, and I have been harrowing for fifty-three years."

"I can honestly say it is the best that I have seen or used in my farming experience of 30 years."

"Your Harrow is what we require to retain our pastures."

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"I inspected most of the crops (wheat in South Canterbury) which had been 'Bevined.' They have improved at least 25 per cent."

"Although I have used less manure this year, my carrying capacity has been increased since I used the 'Bevin.'"

I could go on quoting similar excerpts, but space precludes my doing so. Anyway, you will find hundreds of others published in the pamphlets I will send you.

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Disease in Baby Pigs

DISEASES in baby pigs was discussed in the December issue, and is closely connected with the nutrition of the sow during pregnancy. Deficiency of animal protein, such as meat-meal, or of necessary green food and phosphates where pregnant sows are running on pasture during very dry periods and getting no supplementary feed, may result in many troubles at this period of the pig's life, and ultimately will seriously affect production. In an experiment at Purdue University, United States, 31 sows fed during pregnancy on a grain diet (maize and oats) plus minerals, farrowed 250 pigs of which 44 per cent. were born dead, or died soon after. A further 79 sows fed dried skim-milk, meat-meal, or meat scrap, farrowed 636 pigs of which 11 per cent. were born dead, or died soon after.

Attention at Birth

This would probably result in the saving of a percentage of otherwise healthy little pigs which may be smothered in the foetal membranes, or become chilled. Although actual attention at birth may save many pigs, this is not always possible. Such precautions, however, as having proper farrowing pens, bedded down with short litter, where the sows may become accustomed to their surroundings for a week before due to farrow, will do much to prevent loss of young pigs. The farrowing rail in the sty prevents many pigs being overlain by the mother, whereas close boarding at the floor may prevent young pigs wandering away and being lost. A contented sow, well fed, in known quarters, should have no difficulty in rearing all average-size pigs born.

Losses from various causes may result under an opposite set of conditions. It not infrequently happens that a young sow, not well fed or pre-

Contributed by the Livestock Division.

pared for farrowing, has no milk in the udder when the litter is born. Naturally, there is much fighting among the young, the sow becomes upset and restless, and if the young are not artificially fed for a day or two until milk is freely available, the mortality rate is high.

Scouring

The cause may be infection or nutritional defect and is probably the most serious menace to the little pig. Infection is important, and results from the use of old and dirty germ-laden farrowing houses, or from the sow taking the piglets as soon as they can follow her through dirty wallows or muddy runs. Even where a sow is transferred from a dirty run to a clean house before farrowing she may carry the germs on her udder. Where permanent farrowing pens are used they should be thoroughly cleaned out and washed down, and left open to sun and air for a few days before the sow is put in. In some cases it may be necessary to discontinue use of certain pens for a period.

Nutritional defects might include what amounts to overfeeding, where the sow was a heavy milker, on a milk forcing diet. This type can to some extent be controlled by giving the sow one dose of 3 ounces of epsom salts dissolved in water, added to her skim-milk or slop. Sudden changes in the type of food for the sow, or excess of one kind such as whey, roots, or even lush green grass may react on the young pigs through the sow's milk. British and American investigators now lay much stress on anaemia as a factor in producing scours. The little

Farmers are entitled to the assistance and advice of District Pig Council Supervisors. Pig producers have provided the funds to enable these councils to be set up, and all farmers are urged to take every advantage of these facilities. Applications for assistance should be made to the Department of Agriculture or to District Supervisors as follows: — Whangarei (Box 131); Pukekohe (Box 32); Whakatane (Box 12); Gisborne (Box 316); New Plymouth (Box 131); Palmerston North (Box 80); Dunedin (Box 693); Christchurch (Box 639); Hamilton, care Department of Agriculture.

pig is born with a certain reserve of iron in its body, but this is depleted after the first few days (the sow's milk containing none) until it begins to eat other food, and particularly soil. One old-fashioned but useful idea is to put a sod of soil from some clean spot into the pen where the little pigs can get at it. A method of supplying iron to the small pig by applying a solution of iron and molasses to the sow's udder has been advised, but is insanitary and unsatisfactory. Individual dosing is more effective and reliable, using a solution of 3 drams sulphate of iron, 1 dram bluestone, and 1 pint water (weights should be accurate). Dose for baby pigs—1 teaspoonful per day for a few days. This is also the most successful medicinal treatment for scours.

Fishwick of Wye Experimental Station, England, had good results in the prevention of scours and anaemia in suckers by the use of his barleywater-



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iron, made up with 1 lb. barley-meal stirred up in one gallon of boiling water, cooled and strained, and 1 ounce of Parrish's food per pint added to the liquid, which was fed in a trough at the rate of 1 pint for each eight piglets per day from two weeks old. The mixture requires to be made up each day, and is more cumbersome than the bluestone-iron dosing.

Briefly, the control of scours depends on clean farrowing quarters, clean sows washed before farrowing, correct feeding of the sow at farrowing time, and reduction of feed if necessary to lessen excessive milk production, and also, if necessary, the use of iron-bluestone in actually affected piglets. Piglets may suffer from other complaints common to older pigs. One of these is commonly described as sprochaetal ulcers, or necrotic ulcers. In baby

pigs it may occur round the gums or between the teeth and the lower lip, where it appears as an ugly ulcerous sore containing dead tissue, and having an odour of decomposition. Careful dressing with tincture of iodine after scraping away the worst of the dead tissue may be tried, since the more effective treatment by tartar emetic cannot be used in this situation.

Trembles

This complaint, described in the "Journal of Agriculture," March, 1941, is a nervous affection, of unknown origin, in which the little pig twitches and jerks in all its muscles. If very severe the little pig may be unable to suckle. The tendency is for the condition to improve as the pig grows older, and by three or four months old it may have disappeared. The cause is

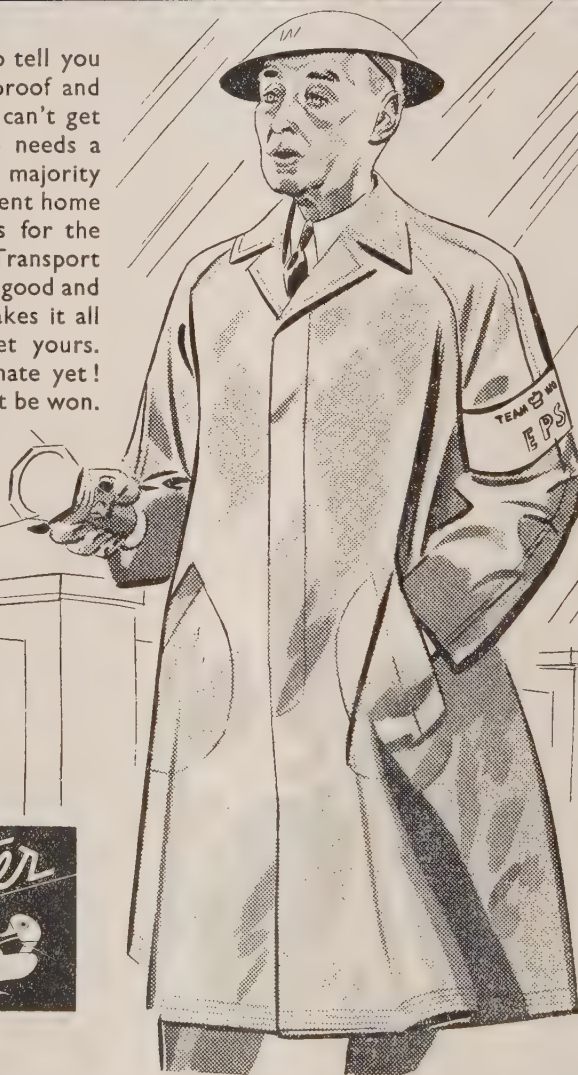
not known, and no treatment is likely to have much influence on its course.

Arthritis

Arthritis occurs in baby pigs in the form of polyarthritis, or inflammation of several joints at once. There may be severe pain and lameness, sometimes mistaken for paralysis, as the little pig lies about and is disinclined to move. In most cases there is visible swelling and puffiness of a joint, hock stifle, or knee. The condition may be mistakenly described as rheumatism. The cause is infection from some source. It may be via the navel at birth, or soon after. Dirty conditions predispose to this trouble, but it may occur in well-kept piggeries. Apart from providing a warm, well-bedded house, little can be done in the

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form of treatment, though drugs of sulphanilamide group are useful.

Swine Influenza

The above comprise most of the diseases affecting small pigs in New Zealand. There are other complaints not so far known to occur here, but they may be present. One is swine influenza. According to British and European authorities this is a very serious trouble in baby pigs. The symptoms described are running at the eyes, depression, coughing, and jerking at the flanks. The mortality may be high. The disease is more evident, strangely enough, in housed pigs than in those with free range. While highly infectious among small

pigs it does not appear to affect sows or mature animals. Cases somewhat resembling the above have been seen here, but attempts to prove that they were in fact due to influenza have so far failed. In the United States swine influenza is described as a disease of older pigs, and shows a much smaller mortality.

A condition in which baby pigs in apparently good condition die after just one or two days' sickness and depression, apparently from a reduced sugar content in the blood, sometimes causes considerable loss in the United States. The cause is not determined, and treatment is not satisfactory, though glucose in the early stage seemed the most hopeful.

Summary

The control of baby pig disease must start during the period of pregnancy of the mother. Feeding must be adequate not only in amount but in variety to include both green food minerals and flesh-forming animal protein, such as milk or meat-meal. The farrowing quarters, and the sow, must be clean, dry, and warm. After farrowing the feeding of the sow must be carefully regulated, reduced at first, and then increased as the piglets reach between two to three weeks. At no time should the suckers move with other older pigs, or have access to dirty contaminated areas.

Infertility in Cattle

Extracted from article in Vety. Record, Vol. 54, No. 23, by R. H. Smythe, M.R.C.V.S.

"THE cow (1942) is a wonderful animal. She maintains an abnormal lactation throughout twelve-thirtieths of her adult life, produces offspring during the winter which nature fitted her to bring forth only in the spring, and, herbivorous by choice, flourishes upon a diet of nuts and beans with a digestive ratio not far removed from that of sawdust. At occasional intervals her endocrine system calls a halt and she exhibits temporary infertility.

Thirty years ago, the percentage of infertility in bovines was negligible; to-day it threatens to dislocate or even destroy the dairying industry. It is significant that the breeding index of heifers has fallen enormously of late years, even on farms where nutritional problems do not exist, and where the incidence of concurrent disease is low.

The purpose of these notes is to stress the opinion held by the writer that with the possible exception of brucella infection, herd infertility as well as the failure of individual animals to breed is in great measure based primarily upon physiological rather than upon pathological causes, and that selective breeding with the object of constantly stepping-up milk production, is inducing the development of lethal factors.

It is a mere question of time before the dairy cow and her fellow victim, the laying hen, become automatically extinct. By a routine adoption of our present methods of treatment we are merely temporising in maintaining a degree of fertility which may suffice for the moment. Incidentally, we are helping to fix a strain of cattle which will depend more and more upon artificial breeding aids in each succeeding generation."



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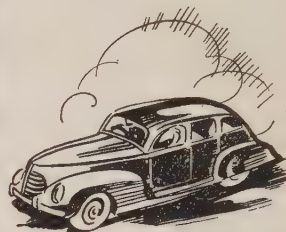
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Winton Grazing Trials

Feeding Value of Perennial Ryegrass Strains

By J. W. WOODCOCK, Fields Superintendent,
Dunedin, and A. STUART, Instructor in
Agriculture, Invercargill.

Grazing Records

AS stated previously, although the trial sheep were kept exclusively on the trial paddocks (plus the fourth reserve paddock of each treatment), there were occasions when further sheep had to be brought in to keep the growth under control. The following table gives the amount of stock carried on the three trial fields during the progress of the trial. Only adult sheep are considered and it is upon these figures that the wool returns mentioned later have been based. (Discrepancies between these returns and those reported by Smith in the "Journal of Agriculture," September, 1938, are due to the fact that in the latter, lambs were included in the grazing returns. As lambs are credited separately they should not appear in "Sheep days per acre.")

The figures are grazing days per acre; the totals for each yearly period when divided by 365 give the carrying capacity per acre.

TABLE II.—Sheep-days per Acre for each month during Trial Periods.

Month.	Southland Paddocks.	Northland Paddocks.
July, 1937 ..	177.7	177.7
August " ..	—	—
September " ..	65.2	88.6
October " ..	198.3	364.3
November " ..	178.8	261.2
December " ..	183.9	240.1
January, 1938 ..	183.6	212.6
February " ..	170.0	175.6
March " ..	245.9	245.9
April " ..	153.4	153.4
May " ..	172.6	172.6
June " ..	177.7	177.7
Total for year ending June, 1938	1,907.1	2,269.7
July, 1938 ..	183.6	183.6
August " ..	55.3	55.3
September " ..	162.3	165.8
October " ..	179.5	229.3
November " ..	177.7	236.9
December " ..	189.5	252.7
January, 1939 ..	183.6	244.8
February " ..	166.0	166.0
March " ..	205.6	205.6
April " ..	181.9	181.9
May " ..	207.7	207.7
June " ..	179.3	179.3
Total for year ending June, 1939	2,022.0	2,258.9

□ In the last issue of the "Journal of Agriculture" details were given of the lay-out of a grazing trial at Winton which was designed to measure the actual production of fat lamb and wool from fields sown with certified Hawkes Bay perennial ryegrass (hereafter referred to as "Northland" fields) as compared with fields sown with a blend of the seven best available lines of Southland ryegrass (subsequently referred to as "Southland" fields). The following particulars relate to the results which were secured.

Month.	Southland Paddocks.	Northland Paddocks.
July, 1939 ..	23.7	23.7
August " ..	—	—
September " ..	152.9	153.0
October " ..	155.0	181.5
November " ..	154.0	196.9
December " ..	154.2	197.7
January, 1940 ..	159.0	203.8
February " ..	267.2	259.6
March " ..	237.1	237.1
April " ..	145.3	145.3
May " ..	180.0	180.0
June " ..	175.3	175.3
Total for year ending June, 1940	1803.7	1,953.9
July, 1940 ..	173.5	173.5
August " ..	—	—
September " ..	173.7	195.1
October " ..	192.1	260.3
November " ..	239.5	300.0
December " ..	249.1	282.6
January, 1941 ..	249.1	195.5
February " ..	215.9	199.2
March " ..	260.7	277.9
April " ..	207.2	207.2
May " ..	246.3	246.3
June " ..	133.3	133.3
Total for year ending June, 1941	2,340.4	2,470.9
Total to June, 1941	9,083.0	9,963.2

The above table shows that the Northland fields, which averaged 2238.3 grazing days per year carried an equivalent of 6.13 sheep per acre, whereas the Southland fields, averaging 2018.3 grazing days, carried 5.53 sheep per acre. (The carrying capacity over the whole farm was approximately 5 sheep per acre during the period.)

It will be observed that during the months of October, November, and December and (with the exception of the last season) January, the Northland fields carried more sheep than did the Southland fields. This is because there was generally a flush growth much earlier in the spring on the

former, more trial sheep were carried on the three trial areas, or extra stock had to be brought in to control the growth. This has been reflected therefore in the wool returns. The Northland fields had a tendency to become less vigorous about the end of December and the herbage in comparison with that of the Southland fields, became somewhat harsh.

Growth Records

In the spring of 1940 an attempt was made to measure the actual growth on the two sets of fields by cutting with a lawnmower every week the grass enclosed in movable frames and weighing it. This was primarily intended to estimate not only the production of herbage, but also the constituents of the grass the sheep were eating. Unfortunately the latter information could not be obtained owing to a number of disturbing factors. The weighings indicated, however, that while the Northland fields produced a greater quantity of feed between September and February (Northland 4044 lb. dry matter per acre as against Southland 3893 lb.), there were periods when the Southland fields gave more. From 25th September to 9th October, Northland gave higher production.

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From 9th October to 6th November, Southland gave higher production.
From 6th November to 12th December, Northland gave higher production.
From 12th December to 15th January, Southland gave higher production.
From 15th January to 17th February, Northland gave higher production.

When the returns from fat lambs are considered later it will be seen that the growth superiority of the Southland fields in December-January was an important factor.

Wool Returns

It will be observed from Table III that the Northland sheep gave consist-

Northland fields in each season, due to a large extent to the higher carrying capacity.

Reports on the condition of the two flocks were supplied by Mr. A. Taylor, of the Southland Frozen Meat Co., who made a detailed inspection of the animals in May, 1938, and again in April, 1941. At the first inspection he reported that there was little to separate the two lines regarding condition. As regards size and growth, neither lot was as well grown as one would expect four tooth ewes on good country to be, but the Southland lot were better grown than the Northland. With regard to wool, the Southland

The latter, however, were better conditioned and slightly better grown.

Lambing Returns

Season 1937-38. As the flocks were composed of maiden ewes, high lambing percentages were not expected in the first year. There were fifty lambs dropped in the Northland flock, equivalent to 83.3 per cent. and fifty-six in the Southland flock, or 93.3 per cent. Two lambs from the former were drowned in the water troughs and one from the latter died. Prior to this stage it was necessary to reduce the flock on the Southland area to 45 ewes, while all the 60 ewes were maintained on the Northland area. To balance up the lambs, 43 were left with the forty-five ewes on Southland while there were 48 lambs with sixty ewes on the Northland. On December 21, it was found necessary to reduce the stocking on the latter and eight dry ewes were removed.

Season 1938-39. Lambing percentages were 101.7 on the Northland and 105 on the Southland flock. One lamb in each flock died from pulpy kidney and one lamb in the Northland flock died at tailing. In the spring, growth was slower than in the previous year and supplementary feeding of 11½ oz. oats per head was fed to both flocks during September. From October onwards 60 ewes and 59 lambs were grazed on the three Northland trial fields which car-

TABLE III.—Returns from Wool.

	1937-38		1938-39		1939-40		1940-41	
	N'land	S'land	N'land	S'land	N'land	S'land	N'land	S'land
Carrying capacity per acre— ewes	6.32	5.22	6.19	5.54	5.34	4.93	6.77	6.41
Average weight per fleece, lb.	9.28	8.95	7.12	6.83	8.83	8.09	7.30	7.11
Valuation d.	8.9	8.92	8.03	8.20	13.04	13.24	13.76	14.22
Total weight per acre lb.	57.72	46.72	44.07	37.84	47.15	39.88	49.43	45.58
Value of wool per acre ..	£2/2/9	£1/14/8	£1/9/6	£1/5/10	£2/11/3	£2/4/0	£2/16/8	£2/14/0

ently heavier fleeces, whereas the Southland sheep's wool was consistently higher in valuation. With the exception of the first season the wool weights do not include bellies owing to the difficulty of keeping this class of wool separate. The value of wool per acre has been in favour of the

sheep had a better bloom on them, whereas the Northland lot were dull and white. At the second inspection at the close of the trial period, Mr. Taylor reported that both lots were showing signs of age, but a few ewes on the Northland pastures had rather better teeth than the Southland lot.

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ried more growth than the Southland paddocks. On the latter only 45 ewes and 47 lambs were carried. Heavy rainfall and lack of sunshine experienced during December appeared to result in the Northland lambs going back slightly, but these conditions did not appear to effect the Southland lambs.

Season 1939-40. The spring was cold and unfavourable for growth and on both treatments 1 lb. of chaff was fed daily to the sheep during September. During this month one ewe in the Northland flock died from ante-partum paralysis. Seventy-two lambs were tailed from this flock, representing a lambing percentage of 120. In the Southland flock three ewes died from ante-partum paralysis and one ewe with twin lambs died after lambing. Sixty-six lambs were tailed, representing a lambing percentage of 110 from the original sixty ewes.

Growth was slow during October and it was considered advisable to reduce the stocking on the Northland fields to 50 ewes and 59 lambs, and on the Southland fields to 39 ewes and 45 lambs. Good growth was experienced in November and December, and the fields were able to carry the stock without the above numbers being changed until the lambs were drafted. One ewe in the Northland flock died at shearing, but this was from the reserve paddock, and therefore did not affect the trial.

Season 1940-41. During the autumn the Northland flock was made up to 60 ewes by substitution. In view of previous experience which suggested that the three Southland trial fields would not carry the 60 ewes, this flock was left at a number of 56 ewes. During September growth was slow, but October was a good growing month. Sixty-seven Northland lambs were tailed, representing a lambing of 111.6 per cent., and 66 Southland lambs were tailed representing 117.9 per cent. All the above ewes and lambs commenced grazing on the areas, and during November it was necessary to bring extra ewes on to all the trial fields to control growth.

Owing to congestion at the freezing works it was not possible to secure a draft of lambs until January 18. In the meantime stocking had to be reduced on the Northland fields by 15 ewes and 16 lambs on January 7 until the lambs were consigned on February 10. This somewhat complicated the returns in this particular season, because, whereas all the lambs had been carried to maturity on the Northland fields the delay in drafting meant that 16 lambs had to be removed and held on the supplementary area. The most satisfactory adjustment would appear to be to regard these 16 lambs as "rape" lambs and deduct 25 per cent. from their value, because they were only carried for three months out of four.

The returns from lambs are shown in Table IV.

TABLE IV.—Returns from Fat Lambs.

	1937-38		1938-39		1939-40		1940-41	
	N'land	S'land	N'land	S'land	N'land	S'land	N'land	S'land
Number of ewes on trial ..	60	45	60	45	50	39	60	56
Lambs on trial fields ..	50	42	61	47	59	45	67	66
Number of fat lambs ..	38	28	43	44	38	43	42	47
Percentage fat .. %	79.1	65.1	72.8	93.5	64.4	95.5	62.7	71.2
Total weight .. lb.	1187	858	1425	1521	1274	1546	1507	1727
Average weight .. lb.	31.23	30.63	33.1	34.3	33.53	35.95	35.88	36.74
Value of fat lambs ..	£5/2/4	£3/18/11	£6/1/3	£6/9/7	£5/17/4	£7/0/11	£6/14/9	£7/13/9
Value of "rape" lambs ..	19/8	£1/9/7	£1/5/8	4/9	£2/7/0	4/6	£1/14/6	£1/11/3
Returns from lambs ..	£6/2/0	£5/3/6	£7/6/11	£6/14/4	£8/4/4	£7/5/5	£8/9/3	£9/5/0

Summary

The total returns for the whole of the four years can be summarised as follows:—

	Northland.	Southland.
Average carrying capacity, ewes per acre ..	6.13	5.53
Average lambing percentage ..	104.1%	104.4%
Average percentage of fat lambs ..	69.8%	181.3%
Average annual returns per acre—	£ s. d.	£ s. d.
Fat lambs ..	5 18 11	6 4 6
Store lambs ..	1 11 8	0 17 6
Wool ..	2 5 0	1 19 7
Total ..	£9 15 7	£9 1 7

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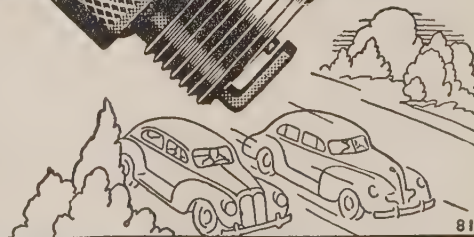
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Conclusions

Two outstanding facts are apparent, firstly, that throughout the progress of the trial the Northland areas have generally produced more feed, have carried more stock, and this has been equivalent to a greater production of wool. Also after the first grazing season, the percentage of fat lambs was greater on the Southland fields, and in spite of a lower rate of stocking, the returns from fat lambs have been higher on these fields. A greater revenue from lamb has been obtained from the Northland fields, but this has been entirely due to store lambs remaining after drafting which have been valued at current market rates. Thus, the contentions originally put forward by Southland farmers and discussed in the first part of this report have not been without justification in these trials, because while they admitted the extra grass production from Hawke's Bay ryegrass, they maintained that more fat lambs could be produced from the Southland ryegrass. Actually, the latter did produce one more fat lamb during the four seasons of the trial.

What have been the factors operating to get these results? The question of management has been evened out as far as it was possible to do so. All other factors have been equalised ex-

cept those of pasture differences. The latter may be regarded from two angles. Firstly, the inherent differences between the ryegrasses used may have been responsible, but it is significant that when ryegrass was at about the same level on both treatments, i.e., in 1937-38, the results as regards fat lamb production were in favour of the Northland areas. The second point of difference is in connection with the content of browntop and inferior grasses and weeds. These elements appeared to replace ryegrass on the Southland areas subsequent to the 1937-38 season, and such replacement appeared to coincide with better fat lamb returns from these fields. Thus, at this point, the experiment seemed to resolve itself into a comparison between a sward of North Island perennial ryegrass and white clover versus a more mixed pasture of Southland ryegrass, white clover, browntop and other grasses or weeds. The two latter, at the close of the trial, consisted chiefly of sweet vernal, poa annua, and moss. There has always been some argument in favour of mixed pastures in the South and although the Southland fields cannot be regarded as "mixed" pastures of the highest degree, the results suggest that further experimental work on the composition of pastures and their relation to fat lamb production is desired.

The trial reported above was an ambitious one and it has been beset with difficulties, chief of which was the different rate of growth of the two kinds of ryegrass in spring. This demanded a heavier rate of stocking of the Northland fields, and although as far as possible differences were adjusted by means of extra dry stock, it was only to be expected that efforts should have been made to turn as much of the extra feed as possible into fat lamb.

Acknowledgments

Thanks are due to the Winton Farm committee for their advice and interest in the trial, and also to the farm managers for the able manner in which the trial was carried out. The assistance of the mercantile firms referred to previously in valuing the wool and lamb produced, and that of Mr. Taylor in reporting on the sheep is gratefully acknowledged. The trial was planned and supervised during the first two years by Mr. J. M. Smith, formerly Fields Superintendent, Dunedin. Other Departmental officers assisted from time to time.

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All ammunition supplies are limited, particularly shotgun cartridges, and orders must be the minimum quantity necessary. The first step to procure ammunition is to prepare an order in writing, setting out the quantity and the purpose for which it is required, and obtain the approval of the local Inspector of Stock, except where deer are concerned, when application should be made to the Department of Internal Affairs, as set out above.

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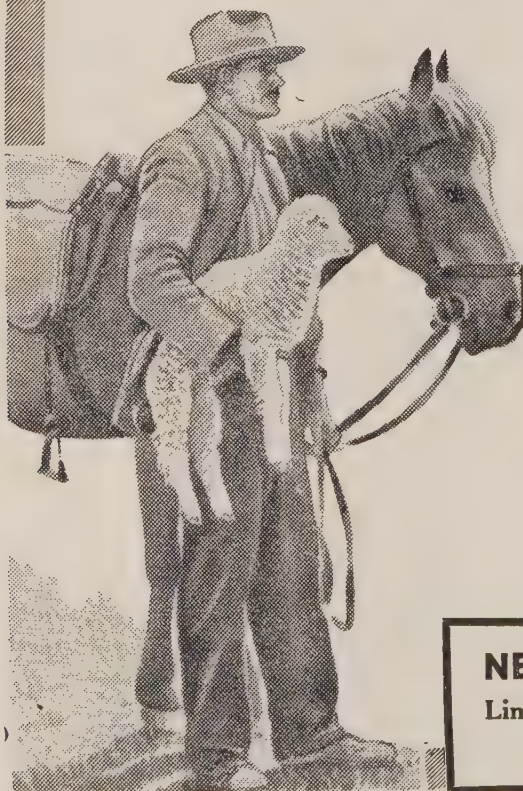
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Veterinary Notes for the Farmer

A Review of Johnes Disease in Cattle

JOHNES disease is caused by a bacillus of the same type, but distinct from the tubercle bacillus. It is a disease of ruminants though, in the earlier days of work on this bacillus, cases in the horse have been recorded, but evidence shows that these were probably cases of avian tuberculosis, a special form of tubercle bacillus found in birds, with a lower degree of virulence for mammals. Although all breeds of cattle are susceptible to infection, dairy cattle in particular are subject to the disease, and whenever intensive dairying is carried on, the disease is widespread. It is likely to be common and more serious in countries with a warm, moist, equable climate than in hotter and drier areas, as the former conditions would favour the general well-being of the bacillus during its period of existence outside the animal body.

Symptoms

By the use of a diagnostic substance to detect the disease before obvious symptoms are manifested, the course is found to be as follows:—

The animal remains bright and feeds well but a steady, slow, and, apparently unaccountable loss of condition ensues, this wasting gives the impression of being greater in the hindquarters than elsewhere. Scouring, at first intermittent, and later constant, sets in. A feature of this diarrhoea is the absence of straining and soreness, it is profuse and effortless. Naturally the pace of the wasting accelerates greatly when scouring commences. Usually in the latter stages there is a dropsical swelling under the lower jaw which enlarges and contracts intermittently, though in some cases in young animals this may be absent.

Finally, at calving time, or a month or so either side of it, the final breakdown occurs, and the cow, if left, dies, frequently in a swamp or creek. The animal shows no signs usually associated with illness other than the scouring and wasting; eyes remain bright and full, and do not become sunken as happens in other cases of rapid wast-

ing, feeding goes on until the end. The appearance is of an animal starving to death on its feet, and that, in short, is what occurs. Under good conditions the breakdown is between the ages of four years and six years in cows, though frequently on bleak farms it will occur in 2-year or 3-year-olds. Bulls if well treated usually last longer, not being under the same strain as milking cows.

The foregoing is the common picture in the usual commercial herd, but animals of 15 years or more, reacting to the Johnin test and showing no other symptoms, have been found on slaughter to be affected with the disease. Reactors to the Johnin test kept under observation in the usual herd conditions in Taranaki show clinical symptoms within a year or so. In one case a reactor at a herd test in March, 1932, was seen in good condition in April, 1936, but broke down and was killed in August, 1936, as an 8-year-old, the laboratory reporting numerous Johnes bacilli.

Post Mortem

If the animal is killed, the marked and prolonged reflex actions of the hind legs are most noticeable, and care should be taken before making any incision in the belly, in order to avoid a wound from one's own knife. An emaciated wreck with a bullet in its brain and its throat cut may give a response four or five minutes after death. This might be considered as almost diagnostic of the disease, the condition not being so noticeable in a similar case of tuberculous emaciation. On opening the body, the organs (heart, liver, lungs, kidneys, etc.), appear normal, and there is usually a fair amount of abdominal fat remaining, with evidence of some, but not excessive, dropsical condition. Very occasionally a

concurrent tubercular infection may exist, but this is never extensive.

A man conversant with the internal conditions of the healthy cow would be puzzled to account for the condition of the animal, hence the old term for such cases, "Piners or Wasters." The organisms are confined to the last part of the small intestine, and the area of the valve at the entrance of the large intestine with the associate lymph glands, where they set up chronic inflammation with thickening and corrugation of the bowel wall. The clinical picture in a case of Johnes disease is one suggesting prolonged interference with the absorption of the nutritional elements of the food, and that the toxic effects of the bacilli are purely local. The method of infection is by the dung to the pastures, and thence by the mouth to the new site of infection.

Curative Treatment

Despite many attempts no satisfactory curative treatment has been found. The scouring can be checked, but there is little hope of the bowel wall returning to normal except in a very early case.

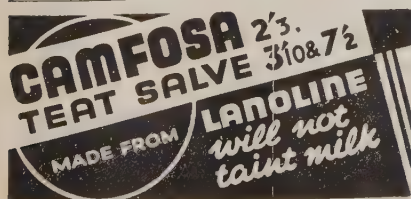
Preventive Treatment

Vaccination has been tried, notably in France where a year or two before the present war many animals were vaccinated in the Cherbourg district, but with a slow and insidious disease of this kind observations would have to be continued over many years before deductions of any value could be drawn. The prospects of the discovery of a successful vaccine are not promising, as the diseases most successfully controlled by vaccination are those in which the whole system is acutely invaded, e.g., anthrax, blackleg, etc.,

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rather than one in which the primary damage is local, and caused by the endo-toxins of the bacilli acting in their immediate vicinity.

There is a diagnostic test of the same type as that used in the early detection

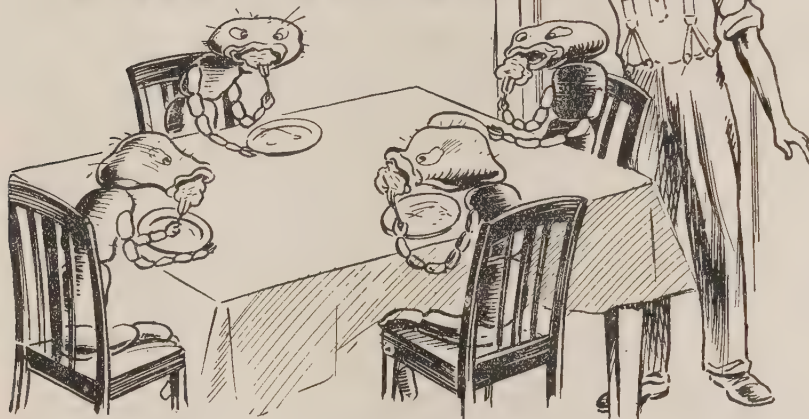
of tuberculosis, this consists of the double intradermal injection of a substance called Johnin. Unfortunately it is not so reliable as tuberculin. Although 10 years' experience has shown that animals reacting to Johnin, and

kept under observation, finally develop into clinical cases of the disease, some infected animals lost their power to react at a much earlier stage than is the case with a tuberculous animal under tuberculin test. This is obviously a drawback when trying to clean up the disease in a herd by testing; it would be better the other way, i.e., that the test occasionally picked up a non-infected animal, provided that no infected ones were missed. However, the test has proved of some assistance in controlling the disease in badly-infected herds and in quarantine work.

Johnes disease is scheduled in the Stock Act, and suspicious cases should be reported. For mitigating the infection on pastures on infected farms, chain harrowing, grazing with sheep destined shortly for slaughter, and draining or fencing off marshy areas all have value. Heavy dressings of burnt lime, about a ton to the acre, would probably impair the efficiency of the bacilli, but the vitality of the organism on the ground must be very great for the following reasons. If a herd suffering from tuberculosis is tested with tuberculin every six months, and the reactors destroyed, the infection dies out on the farm in about two years, and does not reappear unless reintroduced from outside. The tubercle bacillus has three methods of entry into the living body, i.e., by inhalation by the mouth, and more rarely, through the skin, furthermore all animals, also birds, are susceptible to infection, but, so far as is known, the bacillus of Johnes disease only enters by one channel, through the mouth, and is confined to a ruminant host. It therefore must have some compensatory factor to explain its survival to our time, and this, probably, is an ability to live for long periods in the outside world waiting for a suitable host.

—E. H. STEPHENS, M.R.C.V.S.,
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Answers to Correspondents

Swelling on Cow's Leg

"T.M.W." (Waitara):—

I have a young Jersey cow (second calf) which had, about three months ago, a swelling just above the two small toes at the back of the hoof in a front leg, sometimes she would be very lame other times almost right; it took some weeks to disappear, there was no mark or discharge. I treated it by tipping a little kerosene over it at milking time. Now she has developed exactly the same complaint in a hind leg.

This cow is very keen on the lick and often puts most of the time she is in the yard licking it.

Can you suggest what the trouble is and its treatment. Also is millet suitable to feed to cows at any stage of growth?

LIVESTOCK DIVISION:—

The swellings on the legs apparently arise from some local injury of the part, and are merely the after-effects of some strain or bruise. The lameness may or may not be due to these swellings; in fact the history suggests that your cow is suffering from a

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mineral deficiency, which may give rise to lameness without any leg swellings. The cow is constantly licking the lick in the yard. In such a case mix up a lick of equal parts of sterilised bone-flour and coarse salt and place this mixture in the lick-box, or if the animal is receiving any concentrates as feed one or two ounces of sterilised bone-flour should be added daily to the feed for a few weeks.

Millet may be fed to cows with the usual reservations that only small quantities should be fed at a time, and due care exercised to prevent bloat or other digestive disturbance. It is better to allow millet to wilt for a day before feeding. Millet should be cut before the seeds form, as there is some evidence of the seeds having a harmful effect on horses, and pos-

sibly also on cattle. Millet hay has a low food value.

Lung Worm in Calves

"E.C.W." (TE AROHA):—

My calves have got lung worm, they are very thin and the cough and the nose is dry. I have given them a sleep with chloroform, they still cough a little.

LIVESTOCK DIVISION:—

It is noted that you have carried out the chloroform treatment for lung worms in your calves. It is quite possible your calves have lung worms, and also possibly some stomach worms, although you do not mention any symptoms such as scouring. Scouring is evidence of stomach worms in the later stages of a severe infestation. I would suggest you drench the calves with the bluestone drench for calves, and repeat both the chloroform and the bluestone drench in about one month. The calves are liable to become re-infested if left on the same pastures throughout the late summer and autumn months. A change of pasture is therefore of considerable value immediately after treatment with more medicine.



The Earlier
the
Healthier

The soundest advice JOSEPH FORD can offer farmers is . . . "Take nothing for granted . . . protect against scour and unthriftiness and improve the general health and condition of your stock . . . use JOSEPH FORD'S COBALT DRENCH . . . starving is not necessary . . . and it can be given with perfect safety to ewes and lambs of any age or condition."

JOSEPH FORD'S COBALT DRENCH

If unobtainable from your Stock & Station Agent write the manufacturers
LOUDON BROS. LTD. P.O. Box 235 Palmerston Nth.

A well-drained pasture with plenty of feed available is desirable to maintain the growth of the calves. Good feeding is a major part of the battle against worms in young stock, and this aspect of treatment should never be overlooked. Good feeding, management, rotational grazing on selected pastures, and attention to the water supply are most important. Clean, pure water from troughs is much better than a surface water supply, as the latter is liable to contain serious parasitic infection. Later still in the season, very good results will be obtained from the use of supplementary feed such as good hay, ensilage, and roots.

Worms in Young Cattle.

"E.F." (MATIERE):—

We have a few 18 months old cattle which are suffering from worms. They became infested last spring and have been unable to completely get rid of them during the summer. We have considered dosing them with the nicotine-bluestone mixture given hoggets. The mixture we used is as follows:—1

oz. bluestone, 1 oz. nicotine, 1 oz. sulphate of iron, 1 gallon water. What quantity of this mixture would you recommend giving the 18 months old cattle. Also quantity to be given weaner calves (say, 9 months old)?

LIVESTOCK DIVISION:—

The drench you have under consideration for your calves is a very weak solution, and may not prove very satisfactory. It is rather unusual to see calves of eighteen months of age remain worm-infested, and in addition to the drench it is suggested that attention be given to the use of some supplementary feeding, such as good hay and ensilage. Feeding is half the battle against worms in young animals.

In the case of calves, it is common practice to use a bluestone drench made up by dissolving 8 ounces bluestone in three gallons water. Dosage is as follows:—Calves, 4 months: 3 ounces; six months, 4 ounces; nine months, 6 ounces; twelve months, 8 ounces. A larger dose than 8 ounces is not recommended, even in the case of your older cattle.

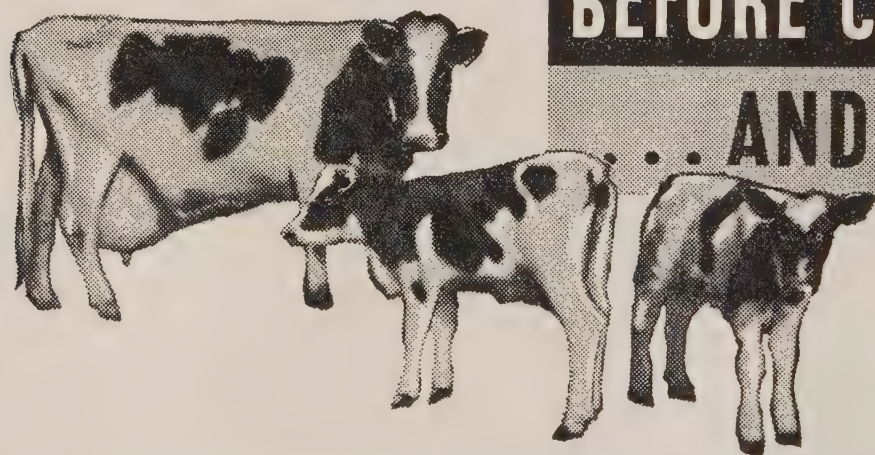
REGISTRATION OF DAIRY FACTORY MANAGERS

Intending applicants are hereby notified that applications for registration under the Dairy Factory Managers' Regulations should reach the Registrar, Dairy Factory Managers' Registration Board, c/o Department of Agriculture, P.O. Box 3004, Wellington, on or before 1st May, 1943. Forms are available from the Registrar.

Attention is drawn to the fact that under the Regulations, any application which is received by the Board after the 1st May, shall not, except in special circumstances, be considered by the Board until after 1st May, 1944.

H. G. PHILPOTT,
Registrar.

N.B.—This notice refers to persons who are NOT AT PRESENT HOLDERS OF CERTIFICATES. Notice of renewal and renewal form will be posted to every registered manager by the Registrar.



**BEFORE CALVING
... AND AFTER**

Two Common-sense Precautions every Farmer should take

RED DRAUGHT Used with Osmond's Oxygas a fortnight before, it prepares the cow for calving and improves its general condition. Acts quickly and beneficially on bad cleansing, loss of cud, impure milk, indigestion, mawbound, costiveness and low condition.

ANTISEPTIC PESSARIES Administered immediately after cows have calved, it ensures perfect cleansing and prepares the cows for the next calving.

OSMOND & SONS
N.Z. LTD.

**ANIMAL MEDICINES
AND FOODS**

Farm Practice and Management

Distribution of Certified Government Stock Seeds

FULL particulars attaching to the ordering and distribution of Certified Government Stock seeds were published in the "Journal of Agriculture" for March, 1941, but for the convenience of interested parties these conditions are summarised as follows:—

1. Applications to be made through mercantile firms stating—

- (a) Name and address of farmer.
- (b) Acreage of individual paddock or paddocks for which seed required.
- (c) Quantity of seed required.
- (d) Where more than one kind of seed applied for, a statement as to whether the seeds are to be sown together or in separate areas.

Note.—Merchants may order seed on their own behalf but must state the above particulars in respect of the farmer who will sow the seed.

2. All applications to hand at June 30 of each year will receive consideration when allocating seed, and in making allocations preference will be given to those applicants, who, in the opinion of the Department will make the best utilisation of the seed available.

3. Notification of allocations made, together with the particulars and price of seed, will be sent to the merchants concerned at September 1 of each year, or as soon thereafter as possible.

4. Merchants are asked to confirm allocations within one month of notification of same, and seed will be made available upon receipt of confirmation.

5. Seed not confirmed as above may be re-allocated, while any surplus of seed available will be offered to fill applications received subsequent to the closing date each year.

6. The seed supplied must be sown in the area for which it has been allotted and in agreement with the local Instructor in Agriculture. Sowing of the seed on another area on the farm may be undertaken in special circumstances provided the action meets with the approval of the local Instructor.

The Department of Agriculture expects to have available for distribution

this year, quantities of the following Certified Government Stock Seeds:—

Perennial ryegrass.
Italian ryegrass.
Short Rotation ryegrass.
Montgomery Red Clover.
White Clover.

Note.—Certified Government Stock Cocksfoot seed is produced and distributed by the Canterbury Agricultural College, Lincoln, to whom intending purchasers are referred for particulars of supply.

—J. H. CLARIDGE, *Seed Certification Officer, Wellington.*

Pampas in Nelson

IN recent years a great deal has been written of the value of pampas as a special purpose forage crop particularly in relation to North Island plantings. Following many optimistic reports several farmers in the Nelson district have set out trial areas of $\frac{1}{2}$ to 4-5 acres.

The accompanying illustration shows a 5-6-year old planting on the property of Mr. E. C. Hailes, Upper Takaka. This stand has made good recovery after grazing.

The consensus of opinion in this, the northernmost sector of the South Island, is that the establishment period before pampas can be successfully cut or grazed is longer than in the north, being at least three years after well-rooted seedlings are planted out. Thereafter the regrowth following cutting on any but warm, fertile coastal land is likely to be slow and disappointing. For these reasons it seems unlikely that pampas can be widely used here as a special purpose winter forage crop with very great success.

—D. M. E. MERRY, *Instructor in Agriculture, Nelson.*



Fertiliser Rationing, 1943/44

FARMERS may apply between 1st March and 30th April for fertiliser on following grounds:—

1. Where through misunderstanding or inability the property owner lodged no application or appeal under the Phosphate Fertiliser Control Notice, 1941. (NOTE.—No applications accepted where cases considered at beginning of rationing in 1941, unless additional evidence available.)
2. Where invoices or other documentary evidence of delivery of fertiliser for topdressing for the two years ended 31st May, 1939, show that the amount used in the following two years (base years) was not the true average amount used. (Documentary evidence must be supplied by applicant.)

Applications to be addressed to the Chairman, Fertiliser Committee, at the Agriculture Department's Office nearest to the property.

Applications lodged after 30th April, 1943, automatically dismissed.

—K. J. FAWCETT, Primary Industries Controller.

Radio Broadcasts

RADIO talks to farmers will be given from Station 1YA, Auckland, at 7.15 p.m., on the following dates:—

March 29.—“The Functions of the Plant Diseases Division,” by Mr. J. Neill, B.Sc., A.O.S.M., Assistant Director of the Plant Diseases Station.

April 5.—“April on the Farm,” Fields Division.

April 12.—“Tuberculosis in Farm Animals,” Mr. H. W. Carbury, M.R.C.V.S., Veterinarian, Auckland.

April 19.—“Pasture Improvement,” Mr. P. S. Syme, Instructor in Agriculture, Warkworth.

Pig Industry Broadcasts.

UNDER the auspices of District Pig Councils concerned broadcasts will be delivered in April as follows:—

1YA, Auckland.—April 15, 7.15 p.m., “Wintering Pigs,” by Colin Wallace, Supervisor, Waikato District Pig Council.

4YA, Dunedin.—April 12, 7.15 p.m., “Common Ailments,” by Supervisor, Otago-Southland District Pig Council.

2ZA, Palmerston North.—April 20, 8.30 p.m., “Breeding Programme,” by J. A. Marsdon, Supervisor, Wellington District Pig Council.

2YH, Napier.—April 15, 7.30 p.m., “Winter-feeding,” by I. H. Owtram, Supervisor, Tairāwhiti District Pig Council.

SPECIAL ANNOUNCEMENT!

For the duration of the War, Mr. A. M. Doull is on Naval Service, and the business is being carried on and supervised by Mrs. Doull. It is our intention to maintain and expand as far as possible the business that we have built up since we commenced a short time ago, and we do appreciate the co-operation of the many customers who have given us a share of their business; we look forward to giving you efficient service, and a ready despatch, so far as war conditions will permit, of your orders, and will always be pleased to handle your enquiries.

Write us for supplies of
POTATOES, ONIONS, WHEAT,
GROUND OATS, LINSEED,
BRAN, GRIT, MEATMEAL,
COPRA MEAL, ETC., ETC.

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IN URGENT DEMAND Railway Wagons and Tarpaulins

To fulfil without interruption the transportation requirements of the military authorities, and to cope with the season's wool and grain traffic, every railway wagon and every tarpaulin must work non-stop.

If, over the whole Dominion, merely ten minutes in every hour were saved in loading and unloading, the equivalent of hundreds of extra wagons and tarpaulins would come into existence immediately.

Are You Doing Your Share?

Slaughtering of Stock

THE following returns of slaughtering of stock at meat-export slaughterhouses and abattoirs for the months, May, 1942, to January, 1943, have been compiled by the Livestock Division:—

District.	Cattle	Calves	Sheep	Of which Ewes were	Lambs	Pigs
North Island.						
Meat-export Slaughterhouses—						
Auckland	158,883	586,709	89,915	54,179	1,079,630	183,748
Poverty Bay-Hawkes Bay ..	41,893	56,341	298,016	221,066	1,044,314	16,145
Taranaki-Manawatu ..	73,556	210,670	97,120	74,173	922,635	96,532
Wairarapa-Wellington ..	31,754	23,206	119,101	68,850	698,129	19,514
Totals	306,086	876,926	604,152	418,268	3,744,708	315,939
Abattoirs	96,216	28,521	450,807	200,627	81,345	93,937
North Island Totals ..	402,302	905,447	1,054,959	618,895	3,826,053	409,876

South Island.						
Meat-export Slaughterhouses—						
Nelson-Marlborough ..	1,449	10,723	7,661	5,245	82,291	6,021
Canterbury-Westland ..	9,910	36,211	139,390	105,038	968,651	21,140
Otago-Southland ..	8,757	37,959	64,213	51,941	1,167,315	4,596
Totals	20,116	84,893	211,264	162,224	2,218,257	31,757
Abattoirs	67,708	16,892	319,978	164,767	57,476	33,874
South Island Totals ..	87,824	101,785	531,242	326,991	2,275,733	65,631

Dominion.						
Meat-expt. Slaughterhouses						
Abattoirs	326,202	961,819	815,416	580,492	5,962,965	347,696
	163,924	45,413	770,785	365,394	138,821	127,811
Grand Totals	490,126	1,007,232	1,586,201	945,886	6,101,786	475,507
Same Period, 1941—						
Meat-export Slaughterhouses and Abattoirs ..	369,980	997,543	1,597,087	894,972	6,824,930	602,761
Same Period, 1940—						
Meat-export Slaughterhouses and Abattoirs ..	421,084	1,027,348	1,664,225	1,028,015	6,410,297	544,752

Slaughtering of Pigs

The 99,307 pigs slaughtered at meat-works and abattoirs during the month of January, 1943, were distributed in weight ranges approximately as follows:—

Up to 60 lb.	208
61 to 120 lb.	23,573
121 to 160 lb.	58,019
161 to 180 lb.	10,490
Over 180 lb.	3,687
Sundries	3,330

The grading of porkers was 94 per cent. of first quality, 6 per cent. of second quality, and that of baconers was 75 per cent. of prime 1's, 19 per cent. of prime 2's, and 6 per cent. of second quality.

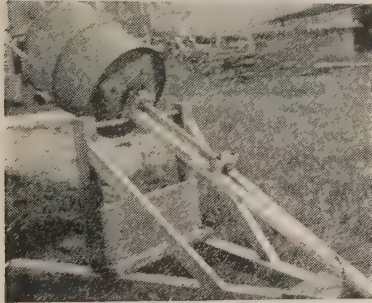
In the different weight ranges of baconers the grading was as follows:—

121-160 lb.	77%	18%	5% of P1's, P2's and 2nds respectively.
161-180 lb.	62%	29%, 9%	of P1's, P2's and 2nds respectively.

A Home-made Concrete Mixer

It is on farms in the more remote districts that the initiative and ingenuity of the farmer of today are most prominent. "Necessity is the mother of invention" and circumstances often compel rapid, practical application of this old-time saying. The following is a fresh idea offered for the benefit of other farmers.

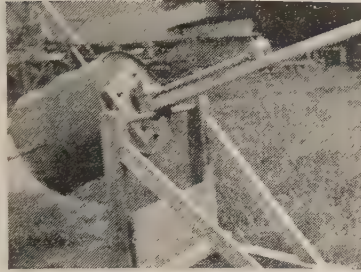
The simple concrete mixer has its miscellaneous collection of plans and



Home-made concrete mixer.

specifications, each one more or less based on the same principle. The one illustrated is no exception to the rule, and its simple construction requires little explanation. Made from scrap materials on the farm, the following are the essentials:—

A 45-gallon oil drum cut to two-thirds its size.



Tipping position.

3 pieces of 2-inch flat iron bolted on inside of drum as baffle bars.

3-inch pipe as a handle. Base board, 1½ inches thick, bolted to bottom of drum. Iron plate attached to base board to take 1-inch pipe as axle. 5-inch x 1½-inch board shaped to handle at one end for raising and lowering from emptying position to mixing position. 1-inch pipe cross-piece as support. Framework of 4-inch x 3-inch runners with 3-inch x 3-inch uprights and 3-inch x 2-inch supports, and other timber available as ties and supports. Bushings of larger pipe held by wooden clamps bolted in position. Short chain on long handle for securing in mixing position.

With both pipe bushings oiled, this mixer is comparatively easy to turn.

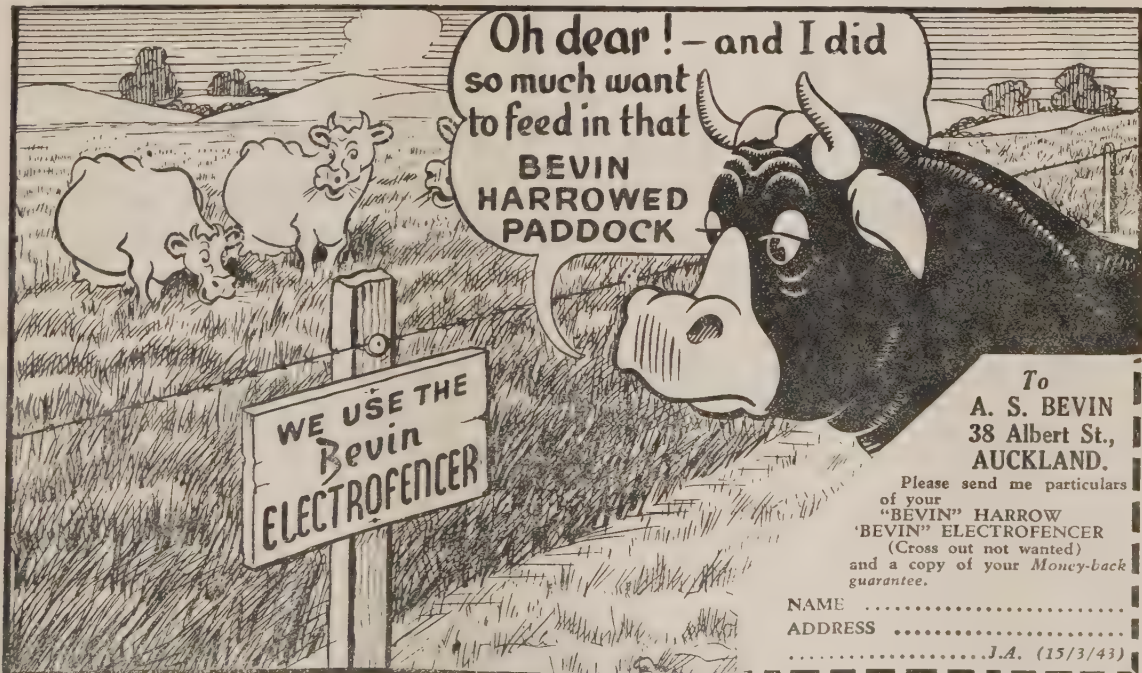
Mixing is carried out in the usual way while emptying is done by pressing down on the lever, releasing the chain from its pin or hook, and raising the lever to the desired height. The base



Illustrating attachment of baffle bars and handle.

plates or runners extending well forward prevent the full mixer from overbalancing. A cheaper and more efficient mixer than this for small jobs would be hard to find.

—J. R. MURRAY, Instructor in Agriculture, Whakatane.



To
A. S. BEVIN
38 Albert St.,
AUCKLAND.

Please send me particulars of your "BEVIN" HARROW "BEVIN" ELECTROFENCER (Cross out not wanted) and a copy of your Money-back guarantee.

NAME

ADDRESS

.....J.A. (15/3/43)

Answer to Correspondent

Temporary Pasture.

"N.N." (TAUMARUNUI):—

Is it profitable to sow a temporary seed mixture (rye and red clover) over a crop of swedes in March, so as to supplement winter feed and an early growth in the spring; also for harvesting it for two seasons, and then establishing a permanent pasture in the autumn?

FIELDS DIVISION:—

It would not be profitable to sow ryegrass and red clover over the swede crop during the month of March, because of the difficulty of obtaining a cover of the seed. If the swede crop is an average one, the shade cast by the leaves would not induce a good establishment of the ryegrass—the plants would be spindly and easily damaged by stock grazing off the swedes.

If in the future you desire to establish a temporary pasture along with the swede crop, the better plan is to sow cocksfoot 5 lb. per acre; red clover 5 lb. for acre; and colonial white clover 1 lb. per acre; total 11 lb. per acre, immediately following the drilling of the swede crop. A light tripod or brush harrow can be attached be-

hind the drill to level off the depressions made by the drill coulter; the grass seed is sown, brush harrowed and rolled. These pasture plants are slower in establishment than ryegrass and will not interfere with the growth of the swede crop, yet by the winter will have produced a reasonable pick- ing for the stock.

The amount of growth obtained in the early spring is generally small, and will depend mainly on the time the feeding off of the swede crop is completed; but during the summer and autumn an abundant growth of red clover-cocksfoot is usually obtained which can be converted into either ensilage or hay. To thicken up the sward so that it will provide good feed for a further 18 months or so, a seeding of 12 lb. to 15 lb. of certified Italian ryegrass can be sown in the autumn following the first harvest of red clover-cocksfoot.

A programme very much on these lines has been used on the pumice lands of the Rotorua district with outstanding success and there appears to be no reason why it should not be equally successful on the light lands of Taumarunui district.

J. J. McCASKEY & SON, LTD.

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MILITARY EQUIPMENT

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not to be disappointed,
or annoyed,
if you cannot buy

"RELAX"

TENTS, TARPAULINS,
STACK COVERS,
WATERPROOF CLOTHING,
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Meanwhile, we won't

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our work for Victory.

J. J. McCASKEY & SON,
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Manufacturers,
WELLINGTON, C.2.

Challenge

SERPENTINE SUPER

A Product of CHALLENGE PHOSPHATE CO., LTD., AUCKLAND

In the Orchard and Vineyard

Orchard Notes

Packing Shed Management

GROWERS are now busy harvesting and packing the pip-fruit crop, and many will be experiencing the difficulties associated with the shortage of experienced labour. In many instances it will have been difficult to secure even inexperienced labour, and growers will be finding it increasingly necessary to work extended hours in order to cope with the rush of harvesting. Within reason, extended hours of work are not harmful, but the greater the extent to which working hours per week become extended beyond this point, the greater the decrease in general efficiency of the worker, and the lower his standard and quality of output per man-hour. As a means towards keeping overtime within reasonable limits, and yet coping with the work of harvesting, intelligent planning is necessary in the fields of harvesting, shed layout and equipment, and general shed management.

Equipment

Now that the spraying season has concluded, wash the pump and spray vat thoroughly, and leave wooden spray vats full of clean water. The general cleaning and adjustment of the pump and engine can be left for a rainy-day job during the winter months, but in the meantime smear grease on ball valves and pump plungers. Hoses should be disconnected and coiled in a barrel and then covered with water.

Cultivation will have ceased, and implements should be stored under cover. Do not leave valuable machinery out in all weathers to become the prey of rust. Growers will be well repaid for the few minutes taken to coat all steel parts of machinery with a smear of used car-oil or thin grease.

Shed Hygiene

An important yet frequently overlooked phase of packing shed operations is the hygiene of the shed and its surroundings. All reject fruit should be disposed of daily. Rotting fruit lying in and around packing sheds is a common sight, and the presence in packed cases of fruit affected by rots is often the outcome of fruit with

skin punctures becoming attacked by spores emanating from various rots in reject fruit which has been left lying around the packing shed. Cases used for holding reject fruit should be sprayed or dipped at least once a week, using one of the sterilising solutions mentioned in these notes in the January issue of the Journal. Fruit packed under clean and hygienic conditions has a much better chance of reaching the public in sound condition, and of keeping in cool store.

Orchard Storage

All fruit intended for orchard storage should be free from disease and in sound condition. Reject and unsound fruit should be eliminated during picking. The cases should be sound and clean, and previously sterilised, and to prevent undue wilting during storage they may be lined with clean paper. The shed used for storage should be clean, and prefer-

ably sprayed throughout the interior with a sterilising solution. Dry-skinned fruit such as Sturmer apples should be close stacked in the shed to prevent undue movement of air which would induce shrivel. Fruit held in orchard storage should be regularly inspected, and should be packed and despatched before deterioration sets in.

Reminders

Clean down the grading table each night with a stiff brush and free it from grit and dirt liable to cause scratches and skin punctures. Packing bins should be packed out each night and accumulations of stalks and grit brushed out.

Packing bins which are allowed to become overfull are potent sources of stem punctures.

Provide supplies of wrapping paper, case liners, and empty cases for packing, handy to the packers. A rack or slide for holding cases ready for packing can frequently be built either above the grader or above the gravity conveyors.

—R. G. I. HAMILTON, District Supervisor, Horticulture Division, Auckland.

Citrus Notes

Passion Fruit Culture

(Continued)

Cultivation

The passion vine, in its natural habitat, thrives on the decaying organic matter of the jungle floor, and under cultivation this habit should be considered. The cultivation programme suggested is an annual shallow winter ploughing in August. Deep ploughing should not be done owing to the danger of destroying many of the surface feeding roots. This should be followed by two or three shallow discings until March when a leguminous cover crop should be sown. By this programme the main pickings from February to April should be harvested before the cover crop is too high and interferes with this work. Cultivation by rotary hoe is also satisfactory provided the hoe is set so as not to inter-

fere with the roots. By light digging or push hoe, the strip of ground, 18 inches wide, under each trellis, should always be kept clean. This is especially important during the months when fruit has to be harvested.

Manuring

With the prolific growth of the vines and the heavy crops obtained on a small acreage, the supply of available plant food soon becomes exhausted unless fertilisers are regularly applied. In established plantings a mixture of 2lb. blood and bone, $\frac{1}{2}$ lb. sulphate of ammonia, $\frac{1}{2}$ lb. sulphate of potash and $\frac{1}{2}$ lb. superphosphate should be applied annually per vine in August and again in December—that is just prior to spring and summer growth. The fertiliser should be spread over the whole area between the trellises and not just

in the immediate vicinity of the vines. For the period before cropping commences, 1lb. of blood and bone alone per vine in August and December should be adequate.

Picking

About fifteen months from the time of planting, passion vines may be expected to bear their first commercial crop of fruit. The vine generally bears a main crop which ripens from February to April and an off season crop during September-October. Odd cases of fruit can be picked during all months of the year, with a minimum during December and January. The summer, or main crop, should be picked every day. During other months once a fortnight is adequate, except at the peak of the winter crop. Kerosene tins with handles attached are suitable picking containers, provided the bottoms are lined with paper. If being picked for the fresh fruit market, every care should be taken to prevent abrasions to the rind and thus loss of bloom.

During the summer crop the vines should be gently shaken and all fallen fruit picked straight from the ground. During other months of the year when picking is more infrequent, besides picking from the ground, fruits may also be picked straight off the vine if fully coloured. Break the fruit stalk at the natural stricture and not close up to the fruit. If fruit is to be packed in a closed container all remnants of the flower should be rubbed off in order to prevent fruit going mouldy in transit.

Packing

No standard package has yet been adopted for passion fruit, but the tomato case, No. 8 in the schedule of cases in the New Zealand-grown fruit regulations 1940, is recommended. This case has inside measurements 4½ in x 12 in. x 16 in., holds approximately twelve dozen fruit either loose or pocket packed, and meets a keen demand during most months of the year. Do not wrap passion fruits, as wrapping appears to be detrimental and assists wrinkling. Passion fruits should be forwarded to the fresh fruit market when fully coloured but unwrinkled. Fruits which commenced to wrinkle should be packed separately or preferably used for juice purposes.

A packing chart for passions packed in the No. 8 case 4½ x 12 x 16 inches, is as under:—

Style of Pack Crosswise.	Style of Pack Lengthwise.	No. of Layers.	Count.
2—1	4—4	8	8 dozen
2—1	5—4	8	9 „
2—1	5—5	8	10 „
2—1	6—5	8	11 „
2—1	6—6	8	12 „
2—1	7—6	8	13 „
2—1	7—7	8	14 „
2—1	8—7	8	15 „
2—1	8—8	8	16 „

Disease Control

The diseases at present recorded as affecting the passion vine in New Zealand are:—

Fungous: Brown-spot, *Sclerotinia*, Bitter-rot, *Cladosporium* sp., *Fusarium* sp.

Insect: Passion-vine-hopper, Mealy bug.

Bacterial: Grease-spot.

Virus: Woodiness.

Physiological: Sun-scald, Root Rot.

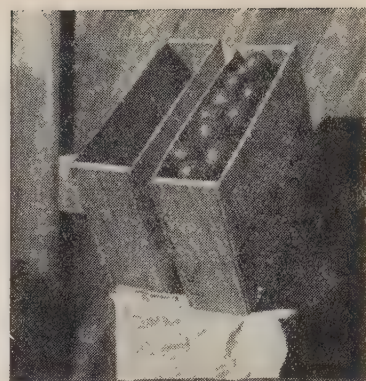
As with most orchard diseases, "prevention is better than cure," hence the emphasis already made to the securing of disease-free seed and the raising of strong healthy plants.

The diseases listed above vary in their effects on passion fruit production. They require to be readily recognised and the necessary steps taken as soon as they are observed. Regular applications of 3-4-50 Bordeaux are essential to check the two most serious diseases—brown-spot and grease-spot—but it should be realised that Bordeaux is a preventive, not a cure, and thus should be applied as a safeguard at least once a month from September to March and longer if necessary.

Brown-spot (*Alternaria passiflorae*): This is the most common disease of the passion vine. It is so common that many growers appear to give it too little attention, as, whilst the vines are young and thriving the disease has little apparent effect on crop production. However, once this fungous disease becomes established, crops which showed promise in January may have turned into shrivelled fruits and dry canes before the main crop is harvested in March. A grower may lose up to 50 per cent. of his summer crop by the ravages of this disease.

In Australia brown-spot is reported to cause severe losses when the disease is present in the virulent form as it completely destroys the main crop of fruit within a few months, besides causing the vines to become sparsely foliated and a mass of dead growths. Local experiences in this respect is identical with that of Australia. Brown-spot is generally a disease affecting the main crop, being present on leaves, stems, runners, and fruits.

The first general symptoms to appear are small spots, at first brown in colour and circular in shape though later these may have a lighter coloured central area and become angular in shape and as large as one inch across. More



Case No. 8 filled with passion fruit.

[I. L. Nottage, photo.]

or less elongated, dark brown areas appear on the stems, usually commencing at the point of attachment of a leaf or where stems have rubbed against the supporting wire. The infection generally spreads from this point and whenever the stem becomes completely girdled, the shoot suddenly wilts and fruits collapse. On the fruit the spots first appear as pin pricks, and these as they enlarge sink inwards and become brownish in the centre. Eventually the rind over the diseased area becomes wrinkled, and the fruits shrivel and fall. The stem infection is the most serious form of this disease and every effort should be made to check the disease in its early stages. Vines should be kept as open as possible to facilitate the thorough application of sprays and infected material should be removed and burnt. The standard Bordeaux 3-4-50 spray at regular intervals throughout the growing season is recommended, commencing spraying in September and continuing until the fruit matures.

Sclerotinia disease: The soil fungus *Sclerotinia sclerotiorum*, stalk-disease, white-mould, or passion-collar-rot, has caused damage in some seasons, chiefly in cool moist periods. The disease attacks yellowing leaves near ground level and causes a wilting of leaves and laterals above the point of infection. The name white-mould most aptly describes the appearance of this disease, as the stems turn white and soft. It is the hyphae of the fungus which attack and kill the stem. If the affected tissues of a vine are opened by a knife, the resting form of this fungus in the form of black sclerotia will be seen. These sclerotia are formed after the plant tissues have been killed. If infection occurs on the main stem at ground level the whole plant may die. Diseased tissues should be pruned off and burnt, vines given adequate ventilation and the ground kept well cultivated, but care must be taken not to injure the vines with implements. Systematic pruning must also

be adopted. As this disease is also parasitic on blue lupin seed, care must be taken not to introduce this disease into a vineyard with the seed of this valuable green manuring cover crop. To test lupin seed, throw a few handfuls of it into water when the sclerotia and infected seed will float on the surface.

Bitter-rot (*Glomeralla cingulata*) is another fungus which attacks passion vines to a limited extent. It is a weak wound parasite but sometimes causes trouble after hailstorms or frost as a secondary effect of unfavourable environmental conditions. It has also been found following brown-spot infection. Regular 3-4-50 Bordeaux sprays should prevent infection, but, if seen, all infected material should be removed and burnt. In removing diseased tissues, a clean cut with a sharp knife should be made if infection is on a leader or the whole shoot should be pruned off. Diseased material should be carefully burnt, knife disinfected with a solution of commercial formalin 1-500, and the wound painted with a bitumastic paint.

Cladosporium herbarium is another fungous disease more in evidence on two-year-old vines, the infection being most extensive on the upper surface of stems. It appears as a brown, irregular, slightly depressed area of the outer bark and is due to this fungus which is a weak parasite following frost injury. To control, it is essential that a covering of 3-4-50 Bordeaux be kept on the vines, especially during the cooler months of April to August.

Fusarium lateritium is another wound parasite of passions, which probably enters through injury caused by cultivation implements.

Root-rot: This is a physiological disease which affects vines growing on a heavy clay soil with inadequate drainage. The symptoms are a poor coloured foliage, small leaves and decayed roots, often completely blackened. Remedial treatment consists in improving the drainage, a severe pruning of the stems to maintain a balance with the reduced root system, and in the worst instances by the removal and replacement of affected vines.

Passion-vine-hopper (*Scolypopa australis*) is often seen in large numbers on passion vines. It is possibly an agent in the spread of some of the diseases, but is generally regarded as of minor importance. Control measures are only effective before the hoppers have become adults and grown wings. The vines should be sprayed with nicotine sulphate 1 pint to 100 gallons water, to which has been added soft soap, 2 to 3 lb. per 100 gallons of water.

Mealy-bug (*Pseudococcus spp.*) has also been reported from passion vines but has not been known to cause any serious damage. This insect is usually found on the fruit stalk, drawing nutriment from the sap. Heavily infested



Left.—Brown-spot of passion. Infected leaves, fruits and lateral. Shrivelled fruit was attached to infected lateral. Right.—Brown-spot infection of passion vine.

[I. L. Nottage, photo.]

vines generally occur only when pruning is inadequate and these vines may require to be removed and burnt.

Grease-spot (*Phytophthora l. passiflorae*): Whilst brown-spot is apparent generally in the months of February and March, grease-spot is more noticeable in the winter months. As many growers first noticed the disease after a frost, it was erroneously assumed that the diseased condition was due to frost damage. It has now been proved to be caused by a bacterium, and, as is usual with bacterial diseases, control depends upon the early recognition of the disease and destruction of affected tissues.

The disease is most readily recognised by its oily appearance on green and purple fruit, being most apparent about July. The appearance of this disease on the fruits consists of oily spots which at a later stage turn into water-soaked areas. This disease causes defoliation, dropping of fruits, and ultimately the death of the vine. Control measures consist of systematic pruning, the burning of prunings, leaves and fruits, and destruction of heavily infected vines. The application of Bordeaux 3-4-50 at regular monthly intervals assists in checking the spread of this disease.

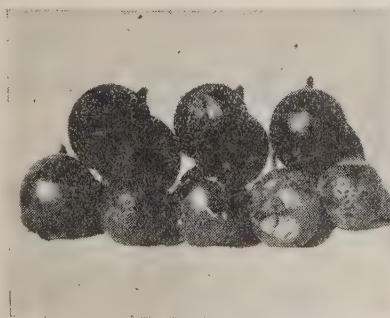
Woodiness disease: The condition referred to as "woodiness" is due to a virus. Affected fruit rinds are hard, distorted and often have characteristic

cracks and eruptions. Many growers have been misled in believing that these affected fruits were simply malformed. When cut, such fruits contain only a small quantity of pulp. Leaves of affected vines are curled and twisted, and the whole vine has a stunted appearance. This disease has been most apparent on the last fruits of the summer crop.

It is possible that a certain amount of spread may take place during pruning operations. It is therefore advisable to frequently wash the hands and secateurs in soapy water so as to minimise the risk of transmitting the disease accidentally. Recent Australian work has shown that this vine disease is transmitted by aphides. Control consists in the removal and destruction by burning of all affected vines.

Sun-scald: This is not a disease. The burning of the epidermis of the fruit usually takes place under still-air conditions through the fruit having been exposed too long to the concentrated rays of the mid-summer sun. Sun-scald can be avoided by regular picking. If necessary, pick twice a day to avoid sun-scald.

Rabbits have been known to attack young plants and this is especially liable to occur in localities where scrub surrounds the passion vineyard. The usual practices of shooting and poisoning should be employed. In addition, wire netting may be neces-



Left.—Grease-spot infection of passion fruits. Right.—Woodiness of passion fruit.

[I. L. Nottage, photo.]

sery around a small area. With larger areas netting (around each vine), or tea tree brushwood has been found effective. The menace from rabbits should decrease as the vines become established and trained on to the trellis as it is the young succulent foliage at ground level which is generally eaten.

Conclusion

The growing of the passion vine necessitates care and thoroughness on the part of the grower if it is to be established successfully and crops of fruit in payable quantities harvested.

Although the vine yields a return within eighteen months from the time of planting, the cost of trellis material, cultivation, fertilisers, pruning and training the vines is quite heavy before the vine yields a financial return. In these circumstances the growing of passion fruit can no longer be recommended commercially for any grower other than one who realises the initial expenditure that is necessary, and, moreover is prepared to prune, train and spray his vines in a systematic manner. Unless sufficient labour is readily available to assist with the training and pruning of the vines and harvesting of the main crops not more than two or three acres should be planted by one grower, and even then it is better to commence with one acre.

Acknowledgments

I have to acknowledge thanks to Messrs. G. M. Parker, Judea, Tauranga; and L. A. Cammell, St. Heliers, Auckland, for assistance and permission to secure suitable photographs; and also to the officers of the Plant Diseases Division, Department of Scientific and Industrial Research, Mt. Albert, Auckland, for checking the section dealing with pests and diseases and recommendations for their control.

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Cool Storage Notes

Pears and Apples For Long Storage

LONG-STORAGE varieties of pears to supply the markets later in the season are placed in cool storage in March. As the stocks are assembled and placed in storage with a view to extending the distribution of the fruit over the season and to give the consumer the choice of a range of varieties and fruits over the full period, storage results will largely depend on the careful selection and handling of all fruit intended for this purpose.

The greatest of care is essential in the selection of pears of good storage quality. During and following their harvesting, pears should be carefully handled, immediately placed in cool storage, and the flesh temperature of the fruit should be quickly reduced and held at 30 deg. F. with as little temperature fluctuation as possible. The relative humidity of the storage atmosphere is also an important factor. This should be maintained at 90 per cent. if the natural bloom of the fruit is to be retained, and wilt and shrivel is to be avoided during storage.

Apples

The main long-storage varieties of apples will be harvested and placed in storage from mid-March to the end of April. During this period the mid-season short-storage dessert and culinary varieties appear on the markets in abundant supply. The Jonathan is the principal and most popular of these, owing to its high colour, firm flesh, and sweet though slightly acid flavour.

By the end of April stocks of the long-storage apple varieties should have been carefully selected and placed in storage. This work entails painstaking care by those responsible, as the results obtained will to a great

extent depend on the quality and condition of the fruit when it is placed in storage.

Granny Smith Apples.—To meet the position arising out of the short supply of oil wraps for fruit held in storage, it is recommended:—

That Granny Smith apples grown in Auckland and Nelson districts should be picked between April 10 and 15, and in Hawke's Bay between April 15 and 20.

That fruit be held, preferably loose in cases, in a cool, dry position in the orchard for a period of 10 days before storing.

That, when placed in cool storage, the flesh temperature of the fruit be reduced and held at 32 deg. F.

That fruit intended for long storage after mid-August should comprise fruit having fresh green colour.

That the available oil wraps should be used to wrap as much of the fruit as possible which is required for this purpose.

—A. A. POWELL, *Cool Storage Officer*, Wellington.

Sheep Dipping

Practical points in sheep dipping, including the design and construction of sheep dipping baths, is the subject of the Department of Agriculture's Bulletin 181. Mr. J. E. Duncan, Wool Instructor, has in this bulletin endeavoured to cover concisely all the aspects of dipping. It is designed to fill a definite want, as most of this information has formally been scattered or available from commercial firms only.

This bulletin is free and copies may be obtained from the Department of Agriculture, Wellington.

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Guide for the Home Garden

Correct Cultivation Promotes Better Crops

CULTIVATION may generally be interpreted as loosening or stirring the soil, and working it into a condition in which seeds sown, or plants set, will have the best opportunity under the most favourable conditions to grow to maturity.

Since the earliest times in which production of crops has been attempted, man has used his ingenuity towards the making or forging of implements which could more effectively be used for cultivation of the soil than was possible by personal effort alone. For the more efficient use of implements, animal, and later, motor power have been utilised.

Weed Control

The primary object of cultivation should be weed control. There are, however, other effects which may be considered, and in directing cultivation towards weed destruction the results may not always be beneficial to the crops being grown because of the manner in which the operation has been carried out.

Weeds, to a degree, have a greater influence on crop yield than is generally supposed, and with the urgent need for vegetable production to the limits of soil capacity, the following results from experiments carried out on Long Island, U.S.A., will be interesting.

develop, and become less susceptible to disease attacks.

In vegetable crop production it is advisable, and even necessary, that cultivation should begin just as soon as is possible after the rows of seedlings—where seed has been sown—can be clearly traced, or when plants have become well established after setting. Undertaken at this stage of growth weeds will be more effectively and more economically destroyed than at any other period. Shallow cultivation is all that is necessary. If, for any reason, the operation is delayed, cultivating implements will require to be used at greater depth. Deep cultivation will often result in serious injury to plant roots which may be spread in the rows, thus preventing the crop obtaining immediate benefit from the plant food which is retained in the top three or four inches of soil. When fertiliser has been applied, and worked in, this top soil is invariably the most fertile.

Cultivation following light rain is not advisable. Through rapid evaporation, the feeding rootlets are denied the moisture which would subsequently penetrate to the soil depth at which they are operating. As a general rule, shallow cultivation will be suitable for all vegetable crops. In spring, when there may be the necessity for the top soil to dry out quickly and to warm up more readily, deeper cultural oper-

storing those portions of his crops which, when harvested, can be used to good advantage throughout the winter period when other vegetables are usually scarce, and high prices are ruling for supplies which may be available.

Potatoes

Main crop potatoes remaining in the garden should be dug before frosts occur. Dry weather conditions when digging are an advantage, and the operation should be timed to start early in the day. After digging, the tubers should be permitted to dry in the sunshine for a few hours; but must not be allowed to remain outside during night-time unless covered with sacks or some such material. The tops should never be used to cover the tubers when dug; they are better destroyed by burning, as they may be infested with the potato tuber-moth. This insect pest of the potato may do enough damage in one night to ruin the crop during storage. In this connection it seems necessary to recommend the destruction of all spent tomato vines, as the larvae of the tomato stem borer moth is known to attack potato haulm and tubers. Potatoes will keep well if placed in sacks and kept in a cool shed.

Pumpkins

For successful storage these should be fully matured before being separated from the vines, which should have completely died down. The outer skin must be well hardened, and in such condition that it cannot be penetrated by the pressure of one's thumb nail. The gourds intended for storage should be transported from the garden with the minimum of handling, and the maximum of care. As cold, damp conditions are unsuitable for storage of these vegetables, they should be raised above floor level or placed on a good layer of straw, or on a shelf. They are often stored successfully by commercial gardeners, who pack them in banana cases which are stacked under the shelter of trees with a northerly aspect, and where there is no danger of frosts doing the gourds any damage. When harvesting is taking place, the vine should be cut three to four inches from the fruits. This part should not, however, be used as a handle. If it breaks harmful bacteria may enter the wound

Average yields, pounds per plot.				
Crop.	No. of Years.	Cultivated.	Cultivated half season.	Weeds allowed to grow.
Beets	7	240.31	239.72	45.56
Carrots	5	505.30	506.41	29.72
Onions	4	67.70	69.60	3.60
Cabbage	4	233.57	234.56	129.08
Tomatoes	7	164.03	166.57	23.28
Potatoes	4	143.35	150.42	52.67

The Soil

In addition to weed destruction, cultivation will materially help towards the conservation of moisture in the soil, assist in the retention of plant nutrients by preventing leaching, particularly of valuable nitrates, enable plants to obtain more light and air, increase aeration of the soil, which, other things being equal, will accelerate the rapid absorption of heat, and will create for the plants a more favourable environment in which to

ations may be adopted, provided the plant roots are not injured. On sloping land regular cultivation of the soil between crop rows becomes a necessity in order to prevent a too rapid run-off during rainfall, or when an irrigation system of watering is adopted. The top layers of soil being loose will permit the water to penetrate more quickly.

Storage

April will determine the home gardener to make ample provision for

created, and start disease which will render the gourd worthless.

Carrots

For most favourable storage carrots should be harvested before hard frosts occur, and the tops cut back to about one inch from the crown. They should be removed with a spade or fork, and not pulled, neither should they be washed before storing. A covering of moist sand is preferable to soil, and it is desirable that there should be sufficient sand to percolate between the whole of the carrots. No damaged or split carrots should be stored. Unless injured by the carrot rust-fly, these will be suitable for use as convenient.

Parsnips

Provided the ground occupied is not required for another crop—whether it is a green manure crop or not—parsnips will keep well in the bed, and can be removed in early spring. If stored, conditions similar to those recommended for carrots are suitable.

Kumeras

No other vegetable—and certainly no root or tuber crop—is more easily damaged while harvesting is proceeding than kumeras, and successful storage very largely depends on the care and attention given to the crop

during this operation. The vegetable is a valuable one, containing as it does vitamin A, B1, B2 and C, with a calorific value of 400 per lb. and an edible percentage of 88. Provided storage conditions are properly observed, there should be no need to rush the garden production into immediate consumption.

Digging should be delayed as long as possible; but this operation must be completed before frosts occur. To facilitate digging, the vines should be removed close to the soil. Only sound tubers should be stored. Before storing, the crop should be gathered in heaps and sweated for a week, covering them at night with sacks. The most convenient method of storing is in dry sand, and there should be an abundance of this used. A corner of a shed will be suitable, provided a layer of sand several inches deep is first put down, and upon this the first lot of kumeras may be placed.

Onions

These should have been harvested during February or early March, many of them being placed in boxes or slatted crates. During the time onions are stored in this manner it will perhaps save disappointment if the bulbs are occasionally examined, and those that may be found in an unsound condition removed. For domestic use

“stringing” and hanging in an airy shed, away from frosts, is an old and excellent method of storing the main crop until an early variety is suitable for use in late spring or summer.

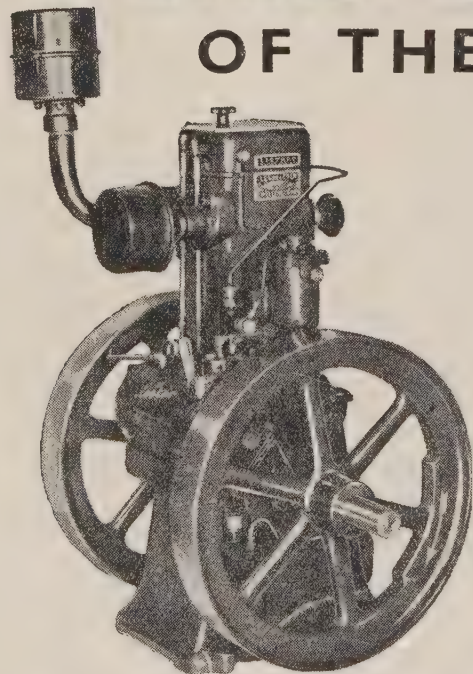
Beetroot, Turnips and Swedes

These root crops can be successfully stored under similar conditions to those recommended for carrots. They should not, however, be allowed to become over-mature before being harvested.

Tomatoes

No effort should be spared to prolong the productive life of tomato plants which may now appear to have reached their final useful stage. With the season of high humidity approaching, more attention than ever should be given to spraying with Bordeaux mixture with which has been mixed the necessary, and recommended quantity of arsenate of lead. It may be assumed that, as the tomato season becomes fairly well advanced, attention to the vines is a matter of little consequence. This, however, is not so. Plenty of good ripe fruit may yet be obtained if proper attention is given to the plants, and careful and efficient spraying is a matter of first importance. Tomatoes high up the plant, provided the vines are not impaired with disease, will mature properly if additional nitrogenous fertiliser is

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applied. Nitrate of soda or sulphate of ammonia, if distributed up both sides of the plants at the rate of 1 oz. to 9 ft. of row and hoed lightly in, will supply the necessary plant food. This fertiliser can also be applied in the form of liquid manure—preferably by the use of nitrate of soda—if dissolved at the rate of one tablespoonful in a kerosene tinful of water. It should be applied after the plants have been watered, or after rain.

Winter Greens

Broccoli, kale and Brussels sprouts will remain in the garden as the principal winter green vegetable supply. Provided proper attention has been given to these crops, little else can be done except cultivating for weed control, and giving weekly applications of liquid animal manure. While

“straight” nitrogenous fertilisers will stimulate production of sprouts, excess applications have a tendency to make them loose and open, consequently undesirable. The production of tightly formed compact sprouts should be aimed at; these are more highly appreciated.

Leeks and Celery

Rigorous weed control is necessary for these crops, as also is liquid manure. Spraying celery with Bordeaux mixture is essential to keep the foliage and ribs free from late blight.

Spring Cabbage

Setting plants of this variety of cabbage for spring cutting should start towards the end of March or early April. The ground should be

deeply dug, and the part of the garden from which the main crop potatoes was removed will be highly suitable. Before digging no stable or farmyard manure should be applied or a green manure crop dug in, and, provided drainage is not the best, a raised bed on which to set the plants is desirable.

If Flower of Spring plants—the variety recommended in these notes—have been grown, planting may be closer than for most other varieties. Blood and bone manure at the rate of $\frac{1}{2}$ lb. per square yard, with which as much superphosphate has been mixed, should be broadcast, and worked into the top soil. Twelve inches between the rows and the same spacing between the plants will assure maximum production on the restricted area of the home garden. Set in this manner, every alternate plant in each row, but not directly opposite each other, may be removed early in spring, which will afford the remainder of the crop sufficient room to fully develop.

Green Manure Crops

No part of the garden which is not to be planted immediately with a vegetable crop should be permitted to remain unproductive, even if it is only sown to a green manure crop. Truly, the only method of maintaining the soil in a desirably high state of fertility is by regular and systematic replacement of organic matter, together with the application of properly balanced fertilisers. The physical structure of the soil, and the period for which the plot in the garden is likely to remain unoccupied by a vegetable crop, will largely determine the kind of green crop which may be grown and the stage of maturity at which it will be dug in. Oats will give a large percentage of humus-creating material, while legumes will, in addition to bulk, add nitrogen to the soil.

—D. K. PRITCHARD, Instructor in Vegetable Culture, Wellington.

Two Common Pests.

Two of the most common pests of cabbages, rape, turnips, chou moellier, etc., are the white butterfly and the diamond-backed moth. No doubt a good deal of confusion exists among the farming community in regard to the damage caused by the white butterfly and the diamond-backed moth, and injury caused by the latter insect is all too commonly blamed on the white butterfly. The fact that butterflies are seen over a crop is not sufficient evidence for attributing any injury to their presence, and the only way to determine the cause of the injury is to examine the crop.

The differences between the two insects and the type of injury they cause are described in a special bulletin issued free by the Department of Agriculture.



Seasonal Work for Beekeepers

Crop Reports for 1942-43 Season

THE season is now sufficiently advanced to give a fairly accurate indication of what the honey crops are likely to be in the various apiary inspection districts throughout the Dominion. A brief summary of reports received from the various districts at the end of January is given below.

Auckland and South Auckland: Strong cool winds during the spring months brought about heavy spring dwindling, from which many colonies never fully recovered their strength. Pastures during January were adversely affected by insufficient rainfall. Trees ceased blooming, but clover was still yielding lightly at the end of the month.

Honey crops below average were secured up to that time with little prospects of any appreciable increase to follow. In coastal areas excellent crops of pohutakawa honey were obtained.

Hamilton, South Auckland: Unusual bee behaviour in many apiaries during January, due to adverse weather conditions, reduced colony strength considerably in a large number of hives. Fine, but dull and windy weather prevailed during the month with indications of dry pasturage in February.

Honey crops will be well below average.

Hastings and Wairarapa: Colony strength during the month was somewhat weakened owing to excessive winds.

Clover and hawkweed bloomed heavily in Wairarapa and southern Hawkes Bay, where good rains fell. North from Dannevirke high winds and hot weather dried up the pastures. Honey crops in central and north

Hawkes Bay will be very light, but good in Wairarapa and southern Hawkes Bay districts.

Palmerston North, Taranaki and Manawatu: Colony strength was well maintained in most localities, and warm sunny weather during the early part of January was favourable for nectar gathering. Later low rainfall and westerly winds dried up the pastures in coastal areas. Wanganui district appeared to have suffered most. Conditions were better in the Manawatu district, where rainfall for the month was 2.72 inches, maintaining abundance of white clover and other ground sources.

The total honey crop for the whole district will be a little below normal.

North Canterbury: The weather was very warm and the flow of nectar heavy. Good crops of excellent quality honey have been secured.

Mid-Canterbury: Rain and cool winds checked the flow in the early part of the month; but later fine weather allowed a brisk flow of nectar on light land areas. Heavy land in these parts did not yield particularly well.

South Canterbury: Changeable weather caused a temporary cessation of the honey flow, but later in January good rains improved the pastures, and average normal crops are assured.

The total crop of honey from Canterbury will be slightly above the normal average.

Otago and Southland: Colony strength was well maintained in all areas with the exception of the southern portion of Southland, where strong winds took heavy toll of field bees.

Honey crops in Otago and parts of Southland will be good, above normal average; elsewhere fair to normal average.

Westland, Nelson and Marlborough: Wet weather during January in Westland restricted the honey flow considerably, and the rata did not bloom up to expectations at low levels.

In Nelson dry weather conditions scorched the pastures and reduced the honey yield; but in some areas clover and lucerne were still yielding nectar at the end of the month.

No rain fell in Marlborough since early December and the district is very dry. Lucerne and blue borage was the main source of nectar supply.

On the whole good crops of honey have been secured.

Food Supplies: Where colonies are provided in the autumn with 35 lb. to 40 lb. of honey, they will winter well and build up satisfactorily the following spring in most districts. Calculating on the basis that a full comb (eight to the super) contains approximately 5 lb. of honey, it is easy to estimate the weight of honey in each hive. Although the supply of honey at present available is far short of requirements, and honey is selling at good prices, it would be false economy for beekeepers to strip their hives below a safe margin for winter and spring colony requirements. With a continuance of war conditions there is always the possibility that supplies of foodstuff necessary for artificial spring feeding of bees where required may be considerably reduced.

—T. S. WINTER, Senior Apiary Instructor, Wellington.

Robbing the Bees

“NORTHLANDER”—

“I am a young beekeeper with half a dozen fairly strong hives. I make sections with these which I can get rid of readily. I therefore rob the bees fairly heavily during the summer, and as the two lower boxes contain mostly brood, the bees do not have a very good winter supply. Where could I buy honey for feeding the bees in the winter?”

HORTICULTURAL DIVISION:—

It is bad apiary practice to strip the hives bare of all stores at the close of the season and rely on artificial or liquid honey feeding during the winter months. It is also doubtful if any beekeeper could be found who is willing to sell honey at a price which would enable such a project to be carried out economically.

Feeding bees in the autumn excites the robbing instinct, and may lead to serious trouble in the apiary. Where honey is fed there is always the possibility of spreading foul-brood.

The methods suggested by “Northlander” are not recommended.

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Notes for the Poultry Farmer

How Increased Egg Production May Be Achieved

THE military and civilian demand for eggs has completely outstripped present-day supplies. Difficulties relating to distribution which leave some districts with a relatively high proportion of the civilian requirements have led to a wrong conception of the position. The plain fact is that more eggs are required urgently. Plans for a more even distribution of eggs are now being put into operation, and should alleviate the egg position in the North Island, but, before a moderately satisfactory supply is obtained many thousands of laying birds, in addition to the number in production during the 1942-43 season, will be required. Unless immediate attention is given to the means of obtaining these pullets no improvement in the position for 1944 can be expected. A real effort by poultry-keepers, whether owners of large or small flocks, can be of outstanding value to the Dominion at the present time. Difficulties will have to be faced and overcome. War conditions are producing what appear to be insuperable difficulties for most districts, and yet the vital need for production results in these difficulties being overcome. Poultry-keepers are now asked to add their quota to the vast programme of production of essential food commodities.

Vital assistance can be given by three classes of keepers of poultry.

(a) The commercial poultry-keeper carrying sound breeding stock. This class of poultry-keeper can help by maintaining the maximum number of breeding stock consistent with available housing, and by using his incubator capacity to the limit. Much depends upon the efforts of poultry-breeders during the coming hatching and rearing season.

(b) Farmers can assist by increasing existent flocks, or by re-stocking

empty poultry-houses wherever labour and food difficulties are not too severe. This will be particularly helpful in districts where organised marketing is set up, and eggs produced can flow into the centres where they are most needed.

(c) The small or backyard poultry-keeper can also be of considerable importance in this drive for eggs. Apart from supplying the owner with eggs for the household, surpluses, which in the aggregate amount to appreciable quantities, can be marketed and used where most urgently required.

Help Offered Producers

Egg prices for the main marketing areas have been fixed for 1943. These will be the day-by-day average paid in 1942, including the additional 2d. per dozen granted in 1942 for the four flush months of September to December inclusive. This has removed all doubts from the minds of producers as to the price they will receive for their main product. Add to this the fact that the market will absorb readily all eggs produced without fear of reaching a saturation point in spring, then many old fears vanish. Last season also demonstrated that the demand for day-old chicks and perching pullets was far in excess of supplies in most districts. This demand for poultry-farm produce must be apparent to all, while returns available show a marked improvement over recent years.

There are, however, difficulties facing those contemplating increased production. These may now be discussed.

(a) **Labour**—probably the most important and the hardest to overcome.

Producers faced with problems connected with military obligations should write immediately to their nearest

Poultry Instructor. The Department of Agriculture will give full consideration to supporting appeals against military service of any poultry-keepers with flocks of 500 or more laying birds. Where poultry-keepers prefer not to lodge appeals themselves, they should approach the nearest Primary Production Council, who will advise, and where considered necessary, lodge an appeal on behalf of a poultry-keeper. Any such appeal will be supported by the Department of Agriculture. Early action is necessary, since delays may ultimately render effective support for any appeal difficult.

In order to arrange for increases in flock size, poultry-keepers may need additional labour. Where any poultry-keeper knows of a suitable Grade 2 or Grade 3 soldier who is willing to leave the Army to help on his farm, he should communicate with the Department of Agriculture at Auckland, Wellington, Christchurch, or Dunedin, requesting that consideration be given to supporting an appeal for the release of the man in question. It is essential to supply the man's number, rank, unit and where stationed, in addition to his medical grading.

Finally, consideration is being given to the **temporary** release of soldiers, irrespective of medical grade, for the rearing season; a policy carried out successfully last season. Again, full details of the man required should be supplied to the Department of Agriculture at least one month before the soldier is required.

(b) **Building material.** Wood is available for poultry-houses, there being no restriction upon the sales of rimu. Poultry-keepers will not be granted permits for the release of corrugated iron sheets or corrugated asbestos sheets, since these are still required for defence purposes. Poultry-house roofs



Help Your Hens Through the Moul

DURING the moult there is nothing better than judicious feeding of MOOSE Linseed Oil Meal. The oil content helps to loosen the old feathers in the follicles and the general health-giving qualities of Moose Linseed Meal

considerably shorten the period of moult. The special protein in Moose is also of considerable value in feather formation. Birds receiving Moose Meal in their mash feather up quickly and are rapidly back into production.

During the Moul, feed at least 5%

MOOSE MEAL in the Ration

must therefore be made of wood and covered with roofing felt, the latter being available through merchants. Should difficulty be experienced in obtaining supplies of timber, write to the nearest Poultry Instructor, stating requirements and the name of the firm unable to fulfil your order. Every endeavour will then be made to have the timber supplied.

Two-inch mesh, 36 in. wide, 19 gauge wire-netting is now available to poultry-keepers who write to their Poultry Instructor stating the number of rolls required and the name of the merchant from whom the wire-netting will be purchased. The application should include a brief statement setting out the purpose for which this netting is required.

(c) **Loans.**—Government loans for increases in buildings and equipment are available to poultry-keepers, and full details of these loans may be obtained from the State Advances Corporation or from the Department of Agriculture.

Poultry-keepers are recommended to write to their Poultry Instructor, care of the Department of Agriculture at Auckland, Palmerston North, Wellington, Christchurch or Dunedin, for practical help or advice in all matters connected with increased egg production.

Increasing Production

For obvious reasons the first step towards increased egg production must be an increase in breeding stock. It is essential, however, that any such increase should be made only with birds having constitutional vigour, good health, and reasonable size for the breed concerned. If indiscriminate matings are made during the coming season to meet the demand for hatching eggs, day-old chicks, and perching pullets, then a heavy price in loss through disease will be paid by the industry in due course. Mating poor stock leads to the production of pullets lacking in constitution—a certain way of inviting outbreaks of disease either during the rearing season or when such birds reach maturity. This is a real danger at times like the present, when the demand for stock is great. **Constitutional vigour is an inherited character, and should therefore be exhibited by both males and females in any mating.**

Mating up fully matured pullets to roosters would help in this drive for

increased numbers of laying pullets, but since pullet mating for purebred stock is so often a dangerous practice, the Department of Agriculture strongly urges that where pullets are used for such matings they be only used for first cross pullet production. First cross pullets inherit hybrid vigour (increased vigour), and cannot later be used for breeding. The breeding from pullets, which themselves were bred from pullets, is a disastrous policy, and is one that would undoubtedly occur ultimately if pure breeding from pullets was recommended. When first cross pullets are required both parents should come from good laying stock. Pullets so bred will usually prove excellent layers and profitable birds. Where a light and a heavy breed are used for this purpose, the light breed cockerel should be mated to heavy breed hens, e.g., White Leghorn x Black Orpington, or White Leghorn x Rhode Island Red. This normally results in greater fertility, and reduces the chances of heavy broodiness in the resultant pullets.

Incubator capacity in the Dominion is a further limiting factor in possible increased production. For this reason, it is suggested to poultry-keepers that they endeavour to start hatching two weeks earlier than last season. In practice, it had been demonstrated, in the majority of cases, that late-hatched pullets develop unsatisfactorily, are more prone to disease, and prove less

profitable. It is therefore urged that no increase in numbers be attempted by late-hatching.

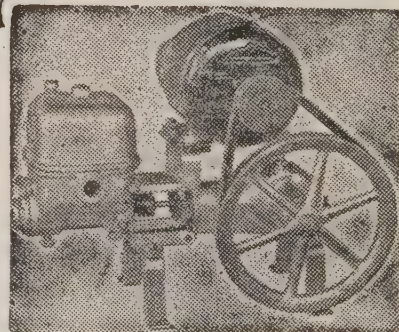
Chick-sexing is an established routine practice in the Dominion, and has certain obvious commercial advantages. The Department of Agriculture will make every possible effort to ensure that the available chick-sexers are given the necessary facilities for rendering the maximum service to producers during the coming hatching season. Poultry-keepers are warned, however, that the closest possible co-operation must exist between these chick-sexers and themselves, in order to prevent unnecessary travelling at a time when the obtaining of supplies of petrol and tyres presents real difficulties.

Finally, marketing problems will have to be faced in certain districts. These will only be overcome if poultry-keepers show willingness to assist the Internal Marketing Division, who are responsible for organising this all-important side of the poultry industry. Little will be achieved from increased production unless eggs are allowed to flow into the organised channels of marketing.

Increased egg-production is needed. Only by taking action immediately and by planning ahead will satisfactory results be ensured.

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Federation of Young Farmers' Clubs

Dairy Farming in Fiji

THE following, quoted from a letter received from Gunner J. B. Emmett, a member of the Kairanga Y.F.C., will be of interest to all associated with the movement in the Dominion, and particularly to his fellow-club members.

"I have been over here in Fiji eight months and get the Journal of Agriculture sent to me regularly; I find it most interesting, more so perhaps, because we are away from the good old New Zealand farm life. I have not had a great deal of time, or the means, to study dairy farming here in Fiji, but have found what I have seen and learnt to be of the greatest interest. Here's wishing you and your fellow-workers in the Y.F.C. movement all success for 1943."

A review of dairy farming in Fiji was enclosed in the letter, and is reproduced below; it should prove both interesting and informative. Gunner Emmett, who writes as follows, is to be congratulated on what is his first literary effort, and also on his keenness, and powers of observation.

Viti Levu

Conditions governing dairy farming and its allied industry, pig-raising, are vastly different in Fiji from those experienced in New Zealand. The biggest factor, of course, is the climate, which in turn has a considerable bearing on the type of pasture. Before going further I should perhaps explain that this island, Viti Levu, has two very different climates, that on the western side being hot and dry, whilst here on the eastern side it is a humid heat, with plenty of rain; it is of conditions on this side that I am endeavouring to give readers an insight.

In Suva the average rainfall for the past 56 years has been 120 inches per annum! Some weeks ago several of the boys from this camp visited a big dairy farm at Navua, and as this farm is run under similar conditions to other farms on this side of the island, I will therefore use it as an example.

Pastures

The main pasture grass is Para grass, and I think in New Zealand such a plant would be considered a weed grass of the worst type. It is a "twitch," grows in long runners, and is coarse and fibrous. When "let go"

the runners grow anything up to twenty feet or more in length, each joint taking root if it touches the ground. It grows upwards to a height of several feet, but the cattle eat only the top few inches, the coarse stems being unpalatable. Para grass is planted from cuttings, a furrow being ploughed, the grass placed on it, and the next furrow turned over on it, and so on. English grasses will not establish here, and the native grasses are more or less useless. No hay is made, nor are supplementary crops of any sort grown—there is sufficient growth all the year round. Apart from that it would be just about impossible to make hay with the weather experienced here.

Mastitis Unknown

As a single dairy farm, the one I am citing is claimed to be the biggest in the southern hemisphere; approximately 2500 cows are hand-milked in 13 sheds by over 100 Indians employed on the place. Whether or not it is due to hand-milking or to the mild climate, I would not care to say, but the fact remains that mastitis is practically unknown. Where labour is concerned the farmer in Fiji has a

great advantage over the New Zealand farmer, Indian labour costing only 3/- to 3/3 per day, the labourers finding themselves. Apparently there is no difficulty in securing the necessary labour in peacetime. Milking is carried on all the year round—that is to say, part of the herd is in milk during summer and part during winter.

Breeds

The cows are practically all Jerseys or Friesians, but I understand that Red Polls are being tried on one or two other farms, and are found to be fairly well suited to the climate and other conditions. Jerseys are "not so good" over here, being very susceptible to disease, particularly T.B., which is very prevalent amongst cattle here. The Friesian is evidently the cow best suited to this climate, so she is gradually replacing the Jersey. Another very interesting fact is that on more farms than one it has been proved conclusively by herd-testing that the Friesian gives a greater production of butter-fat per annum than the Jersey. The Friesian breed scores yet another point, inasmuch as there

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is quite a fair demand for the big black-and-white bull calves, the Indians rearing them and making working bullocks of them; naturally they develop into much huskier cattle than do the Jerseys.

Butterfat Production

Butter-fat per cow is much lower here than in New Zealand, a cow that produces 200 lb. in a season being considered quite good. This low production is partly due to what we would term inferior pastures, and partly to climatic conditions, there being a fall-off in production in very wet weather and again in very hot weather. Butter-fat, and as a consequence the butter, is very white, but it is interesting to note that Fijian butter has taken prizes at Sydney shows. Another interesting point is that it has an 18 per cent. water content, sometimes 20 per cent., but I understand that a law is likely to be passed setting the moisture content at not more than 18 per cent. Salt content is 3 per cent. The "pay-out" this year is 1s 6d per pound of butter-fat.

Pigs

Pigs appear to be a profitable sideline, a 100 lb. porker being worth £4. Pigs are raised solely for local consumption as pork, there being no bacon factories or anything of that description. Large whites seem to be the pigs best suited to the climate, and those I saw were a particularly healthy-looking lot and kept under ideal conditions. Their diet consisted of skim-milk, cocoa-nut meal (made from cocoa-nuts after the oil has been extracted), and a certain amount of meat, the unwanted calves and "boner" cows being killed for that purpose. The periodic importation, mainly from New Zealand, of good boars—and of good bulls too—keeps the stock up to a fairly good standard.

Dairy farming is rather restricted in Fiji owing to the fact that there is not much of the right type of land, so that there is, from what I can gather, little prospect for the expansion of the industry. Large tracts of land otherwise suited to dairying are being utilised for the more important industry of sugar-cane growing.

For the information of Y.F.C. members desiring to write to Gunner Emmett his address is: 73855 Gunner J. B. Emmett, Heavy Section, 38th Mixed A.A. Battery, Fiji Section, N.Z.A., 2nd N.Z.E.F.

Ploughs

and ploughing is the subject of the Department's free bulletin No. 185. The functions and care of the various types and designs of ploughs are fully explained.

Young Farmers' Club Scholarships

IN spite of war conditions applications were received for the two scholarships which were available to South Island young farmers and tenable at Lincoln College. These were the Canterbury Agricultural College (Lincoln) Old Students' Association scholarship valued at 25 guineas, and the Canterbury Frozen Meat Co.'s scholarship valued at 50 guineas. Strangely enough the successful candidates were members of the same club, namely the Methven Young Farmers' Club in the Mid-Canterbury district.

Colin James Wilson received the Lincoln College Old Students' scholarship, whilst James Henry Stone, Jun., received the C.F.M. Co.'s scholarship. Both lads' record at the Methven District High School shows that their interests have been wide, and that both have taken part in all school activities.

Wilson sat this year for his Public Service examination, whilst Stone sat

for the Public Service, matriculation, and school certificate examinations. Their interest in district affairs, and particularly in their club, has been keen, and reflects the home of both lads, their parents being very highly respected residents of the district.

Normally it is the practice of the selection committee appointed by the two South Island councils to select as scholarship holders only lads who have had some post-school farming experience. However, times are not normal, and although both Wilson and Stone will be proceeding direct from school to college, the committee has every confidence in their justifying the honour that has been conferred upon them.

The committee would also, on behalf of the South Island councils, pay a tribute to the Canterbury Agricultural Old Students' Association and to the Canterbury Frozen Meat Co. for their continued interest in the Y.F.C. movement.

Obituary

AMONGST the names in a recent casualty list was that of Private J. M. Brand, M.M. Brand was a member of the Otago Young Farmers' Club, and also of the Otago-Southland party which toured the Wellington and Taranaki districts in May, 1939.

Leaving New Zealand with the 2nd Echelon, he took part in the first Libyan campaign, and was later one of those captured by the Germans in Greece. Posted missing, he afterwards, with five others, made a dramatic escape from the prison camp in which he was held. His implement in assisting in the cutting of a tunnel 25 feet long was a bread knife, and the party had some hair-raising experiences making the sea journey from Greece to Palestine. After a period of convalescence he was posted to the 33rd Tank Battalion, and remained in that unit until his death in action some few weeks ago.

Although just a farm worker, Jock Brand was a gentleman in the real sense of the word, and his record as a soldier, although he never aspired to rank, was one worthy of the best type of New Zealander. As a Young Farmer, Jock was one of that vast body of young New Zealand manhood which formed the rank and file of the movement, and although here again he did not seek office, nevertheless he took a keen interest in the club and in district affairs.

His passing will be regretted by all who were privileged to know him.

Don't

allow any part of the garden to be without a crop. If not planted with a vegetable crop, dig over and sow to a cover crop. When dug, the humus-content of the soil will be increased and depleted fertility restored.

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SIXTH SERIES.

ARMY.

Name.	Club.
Bagshaw, D. F. ..	Mauku
Bagshaw, F. ..	Mauku
Bellhouse, N. J. ..	Mauku
Bradstreet, I. S. ..	Hunua
Brown, A. § ..	Dannevirke
Craig, I. R. W. ..	Dipton
Crispe, H. ..	Mauku
Drummond, A. L. ..	Five Rivers
Drummond, J. H. ..	Five Rivers
Gallagher, D. J. ..	Mauku
Gardner, G. G. ..	Scargill-Omihi
Goosman, B. A. ..	Mauku
Harvey, J. C. G. † ..	Five Rivers
Hooper-Smith, E. † ..	Dannevirke
Jenkins, L. T. H. ..	Mauku
Lilley, A. ..	Five Rivers
Macgregor, D. ..	Hunua
Maitland, J. E. ..	Mangatawhiri
Martin, W. ..	Mauku

Name.

Club.

Maxwell, W. N. ..	Scargill-Omihi
Miller, C. ..	Hunua
Newton, J. M. † ..	Five Rivers
Nicholls, B. A. ..	Scargill-Omihi
Northcoate, G. † ..	Five Rivers
Pratton, A. ..	Hunua
Reitcheson, M. P. † ..	Five Rivers
Roberts, L. M. ..	Scargill-Omihi
Rolston, R. R. D. ..	Levin
Sleeth, D. ..	Hunua
Sloss, E. ..	Scargill-Omihi
Sommerville, W. ..	Mauku
Stone, A. ..	Scargill-Omihi
Symonds, H. F. ..	Scargill-Omihi
ThurLOW, J. ..	Murchison
Turner, D. ..	Dannevirke

* Killed in flying accident.

§ Wounded.

† Prisoner of war.

Name.

Club.

Watson, S. ..	Mauku
Wellacott, W. ..	Hunua
White, A. ..	Hunua
White, D. J. ..	Hunua
Wymer, B. ..	Mauku

NAVY

Glen, W. ..	Hunua
Redman, J. ..	Hunua

AIR FORCE

Chamberlain, W. A. ..	Hunua
Foster, O. E. ..	Scargill-Omihi
Gibson, T. R. ..	Five Rivers
Hamilton, H. J. ..	Scargill-Omihi
Le Gall, M. A. ..	Scargill-Omihi
McLachlan, D. ..	Scargill-Omihi
McIntyre, I. C. * ..	Woodlands
Northcoate, D. ..	Five Rivers
Saunders, A. M. ..	Scargill-Omihi
Sexton, M. I. ..	Hunua

Reports on Club Activities

SOUTH OTAGO.

Warepa.—Club members met in Mr. L. Christie's woolshed at Warepa; a butchering demonstration by Mr. W. Miller, of Kaihiku. Mr. Miller killed, skinned, and dressed three sheep, showing and explaining to members all points to be considered in turning out a properly-dressed and finished carcass. Arrangements made for the next meeting. There was an attendance of thirteen out of a total membership of twenty.

MANAWATU.

Bunnythorpe.—Short discussion on the Potato competition. Lecture on "Grasses" by Mr. T. Richardson; this was followed with keen interest, and a lively discussion ensued. Eleven members in attendance out of a total of fourteen.

TE KUITI.

Paewhenua.—Club debate, the subject being "That Country Life Has Greater Advantages Than Town Life." Speakers: Affirmative, C. Dean (leader), K. Harnett, L. Harnett; negative, G. Morris (leader), W. Dean, C. E. Heena. It was decided to hold another debate at the next meeting, and teams were chosen from those members who had not already taken part.

There were nine members present out of a total of seventeen. At the previous meeting arrangements were finalised for a tennis match with members of the Otorohanga Club; the meeting concluded with impromptu speeches by members, the attendance being ten.

BAY OF PLENTY.

Paengaroa.—Two members, C. Riddell and J. Gulliver, gave interesting talks on the judging of dairy cows, and gave their experiences of stock-judging competitions in which they had taken part in outside districts. There were seventeen members present. At the previous meeting one new member was enrolled, and final arrangements were made for the club's annual dance. Lieut. Brown, Adjutant, Te Puke Home Guard, gave an interesting lecture on "Farm Finance and Mortgages," and answered numerous questions put forward by members. At this meeting there was an attendance of twenty-four.

Tauranga.—Decided to invite members from the local military camp to attend meetings and lectures. A visit to the dairy factory was arranged. Mr. Harvey, manager of the Tauranga Dairy Factory, gave a lecture on "The Manufacture of Butter, and Factors Causing Poor Grades of Cream." The lecture was most in-

teresting and informative, and is to be followed up by two visits to the dairy factory, one whilst the machinery is idle, so that it may be explained in detail, and the other whilst it is in operation. At previously unreported meetings the following activities took place: Impromptu speeches by club members; delegates reported on the district committee meeting; social held for the purpose of teaching younger members to dance; lecture on "Orchard Diseases" by Mr. Nottage, Department of Agriculture; club's fifth birthday party held. Four new members recently enrolled, bringing total membership up to twenty. News was received that Cpl. A. Voss, a member who left for the Middle East in 1940, has been decorated with the D.C.M. for bravery.

Note.—Club secretaries are urged to send in reports of their club meetings and field days as regularly as possible, so that publicity may be given to all club activities. Accounts of club doings are not only of value to those keenly interested in the organisation here in New Zealand, but are eagerly sought after by club members in the fighting forces, to whom news of their old club's activities is quite a refreshing tonic. They are "keeping the flag flying" overseas, and it is up to all members at home to "do their bit" in an endeavour to keep the Y.F.C. movement alive—this applies particularly to club officials.

Health Notes for the Farm

The Problem of Goitre

FOUR or five hundred years ago fashions in feminine beauty conformed to the same rather fantastic patterns as fashions in clothes—that is, in our eyes. Away back in the 15th and 16th centuries, when the great masterpieces of art were being produced, fashions in necks, for instance, were unique. Unless a lady of fashion had the requisite facial beauty, combined with a swan-like curved neck, her career as a lady of fashion was doomed.

It is interesting to note in the religious paintings of the day, in paintings of the Sistine Madonna, for instance, the swan-like beauty of the necks. It will probably come as a slight shock to be told that the cause of that rather ravishing curve was goitre—just plain goitre, as we know it today. No doubt the condition was so common in the middle ages that it was accepted as a standard of feminine beauty, and any young woman who possessed a plain, curveless, but perfectly healthy neck was simply *de trop*.

Reasons for Goitre

Why is it that goitre was so common? In the first place, geographical factors entered into it. The sea-coast dwellers did not have this goitre, but most of the women of Switzerland, of Northern Italy, and indeed, of all Central Europe, had the typical enlarged thyroid gland. The reason was that the clean, pure water of the snows

Contributed by the DEPARTMENT OF HEALTH

which fed the soils of the inland countries was too pure; and that the sea, which had the power to prevent goitre, was too far away.

Although the enlarged neck was a thing of beauty there were some ugly facts connected with it—such as the birth of stillborn or cretinous children, who were mentally subnormal or frankly idiot. So bad did this become that something had to be done, and a treatment was discovered in the form of a burnt sponge—the sort of thing we used to know as a bath sponge.

Nowadays we know that the seas and seaweed, and things of the sea generally, contain iodine. These sponges contained iodine. It is obvious, then, that even in those far-off days iodine was recognised as necessary in the treatment of goitre.

Prevalence in N.Z.

Now let us consider our own tendency to develop swan-like necks, which are no longer regarded as things of beauty. New Zealand is listed as a goitrous country, especially the districts of Taupo, the Waikato, Taranaki, and Wanganui in the North Island, and Collingwood, Buller, Canterbury, and Clutha in the South Island. Most of these districts—as a glance at the map will show—have their soil watered

by the pure snow waters of our lovely mountains.

Iodine

Fortunately we are spared the old sponge cure. All we have to do is to use iodised salt in cooking. As little as one-sixth of an ounce of salt, that is, one teaspoonful, will supply the day's need of iodine for one person. If this is too much, frequent use of the following foods will supplement the daily dose:—

Firstly, we have carrageen, or Irish moss, an edible seaweed, made into puddings. A mere pinch of one-hundredth of an ounce of carrageen will give half a day's supply of iodine. To make a carrageen pudding—carrageen is, by the way, a whitish, and often pink-tipped soft variety of thin seaweed, more commonly found in the South Island—to make this pudding all you have to do is to simmer a leaf of carrageen in milk for about two hours, then remove the leaf and add sugar and flavouring as with junket. The leaf may be used again.

Secondly, fish are important, especially the kelp-feeding fish such as butterfish or garfish. Five ounces of this fish, or of crayfish, or 16 oysters will also provide the daily need of iodine.

Thirdly, we can get some iodine from eggs, green vegetables, whole cereals and milk.

So you see, within easy reach we moderns have abundant and palatable supplies of iodine. We don't have to go round burning sponges—even if we could get them.

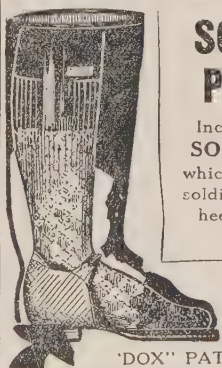
Mint, sage, and thyme should be gathered for drying when in flower. Tie the bunches on a line, and leave in the sun until the leaves are brittle, then strip them, and rub through a colander or sieve, and bottle in air-tight jars.

* * *

To peel small onions for pickling, put them in boiling water, boil for a few minutes, drain, dry with a cloth, and peel at once. The work is done in quarter of the time without affecting the hands or eyes.

* * *

A knob of blue will last longer if you wrap it in thick woollen material. The blue then stops oozing out as soon as you stop squeezing it.



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Oil paintings can be cleaned quite successfully. Just rub the painting over with a soft cloth dipped in linseed oil. Leave the picture overnight, and then wipe off the oil with a clean cloth.

* * *

Once a pumpkin has been cut, it must be used quickly, otherwise it becomes soft. Remove all seeds, and dust the inside and cut edges with flour. This will preserve the pumpkin for some days, and the flour can easily be washed off before cooking.



"ALL the world loves a lover," so the saying goes, and in the same strain I would like to add "And all the world loves a bride." So because there will be many Easter brides amongst you, I have planned this issue for brides-to-be. I hesitate to offer advice on the wisdom or otherwise of young folk marrying in war-time—it is a question which can be decided only by the two concerned. But if you have made up your mind to marry the one you love, do not let present-day conditions interfere with your wedding preparations—marry him, and make your wedding day a thing of beauty and harmony that you will not easily forget. It takes courage to be a war-time bride, but because you have decided to be married at Easter, I would tell you of a war-time wedding which took place early in 1941. They were a young couple—she was twenty-two, and he was twenty-four. After a honeymoon that lasted two weeks the young husband went overseas, and some months later the wife learned that he would return no more. Yet as she told me her story she smiled through her tears and said, "I wouldn't have missed being married for anything. I will never forget him. We were divinely happy for those two weeks, and I have no regrets of happiness that could have been mine, but wasn't." And her words reminded me of two lines by the poet Longfellow: at least they were not true of this bride.

"O lost days of delight, that were wasted in doubting and waiting!
O lost hours and days in which we might have been happy!"

Yet marriage must not be entered into lightly. I would like to share with you a piece from a book I enjoyed, entitled "The Girl's Everyday Book."

"Romance often comes with so flashing a light that it blinds one's eyes to the more steady and less brilliant fires. Many girls push on toward marriage before they have learned the zest for work, the give and take of play, and the joy of worship. They do not realise that to be enduring romance has to fasten on to the tough fibres of work and friendship and ideals. They do not know that when it has only physical attraction on which to feed, it burns out like a Roman candle. It is

From Me To You

not so long since we were taught to think that physical attraction between man and woman was an ugly thing in itself. To-day we know that no human faculty or capacity is bad in itself, but there are desirable and undesirable expressions of every power we have. It is just because of the great place of physical attraction in the life of love, out of which has come all that is richest in human experience, that the misuse that prevents its fine flowering brings such disaster."

Marriage is not a thing of loosely knit sentiments and easy emotions, but a firmly woven texture of mutual faith and respect, quite superior to degrading suspicions and little jealousies and petty selfishness. It is a full-time job—three hundred and sixty-five days a year, with no holidays. But if you feel that the man you love will help you to make your marriage into everything that you desire from life, then I say go ahead. "If you have found the man with whom you can share things—your thoughts, your secrets, your dreams, your enthusiasms, and your

pastimes, the man with whom you are never bored, whether you are talking, dancing, or merely sitting in silence, the man who understands you, helps you to idealise yourself, cheers you on and gives life a real meaning for you—then you have at least found the 'ideal' man for you. That's all that counts—why ask for more?"

Do you know that delightful verse by F. Bourdillon called "Night"? How true it is!

"The night has a thousand eyes,
And the day but one . . .
Yet the light of the bright world dies
With the dying sun.
The mind has a thousand eyes
And the heart but one;
Yet the light of a whole life dies
When love is done."

And so to every bride of this coming Eastertide I send my wishes for lasting happiness, and just one piece of advice: never lose sight of your sense of humour. The love that endures and outlasts even life itself is the love that can laugh at everything, however big, however small. Whatever troubles may befall you—and you will encounter many as the days go by—don't let them get the better of you. Keep smiling, and here's luck!

Mary

ON BEING IN LOVE

"Do not keep the alabaster box of your love and tenderness sealed up until your friends are dead. Fill their lives with sweetness. Speak approving, cheering words while their ears can hear them, while their hearts can be thrilled and made happier. The kind things you mean to say when they are gone, say before they go."—G. W. Childs.

* * *

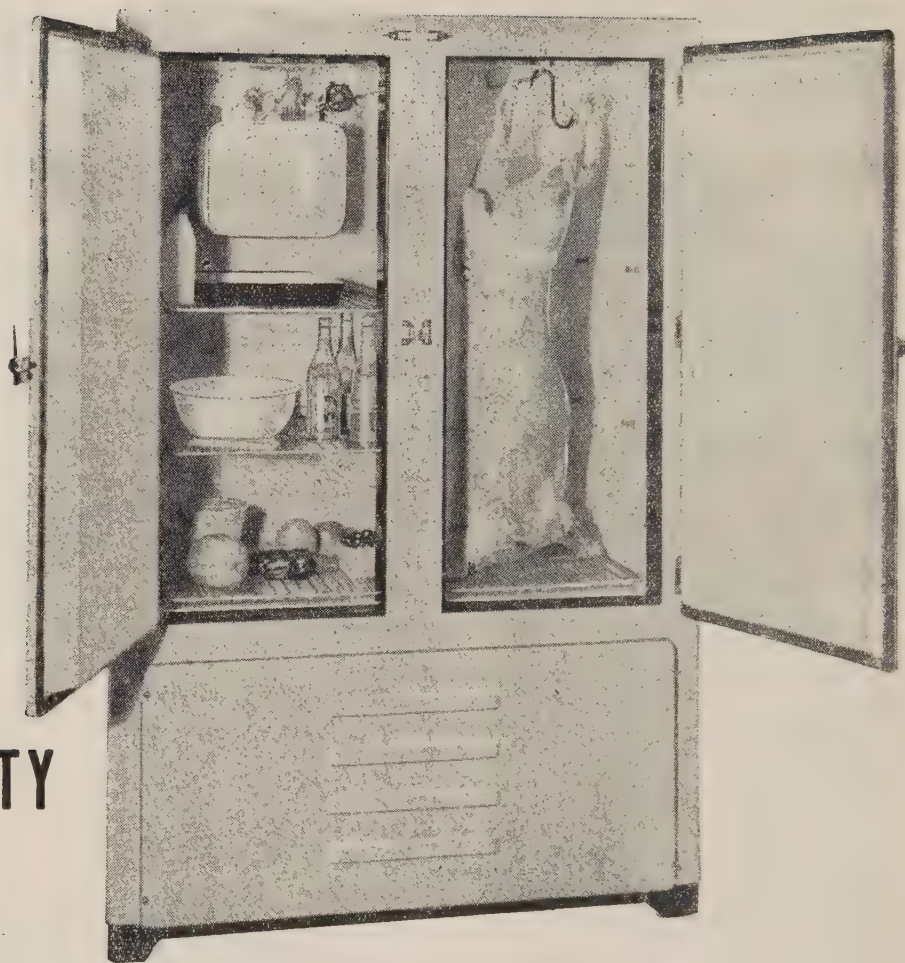
"I am bigger than anything that can happen to me. All these things, sorrow, misfortune, and suffering, are outside my door. I am in the house, and I have the key."—C. F. Lummis.

"There is one in the world who feels for him who is sad a keener pang than he feels for himself; there is one to whom reflected joy is better than that which comes direct; there is one who loses all sense of self in the sentiment of kindness, tenderness, and devotion to another—that one is woman."—Washington Irving.

* * *

"Child, shall I tell thee where Nature is most blessed and fair? It is where those we love abide. Though that space be small, ample is it above kingdoms; though it be a desert, through it runs the river of paradise, and there are the enchanted bowers."—Ibn Ahmed Attar.

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'From this Day Forward'

"To have and to hold from this day forward, for better for worse, for richer for poorer, in sickness and in health, to love and to cherish, till death do us part."



It is you, Easter Bride, whose turn it will be very shortly now to say those precious words at the altar. So many times before no doubt you have been present in the church, and heard those all-important words said by your friends. But now it is your turn, and what a collection of things you seem to have ahead of you before that happy day arrives. At a time like this there is so much to do and to think of—a trousseau to be planned and collected, a future home to be considered, furniture chosen perhaps, and more than likely you have to cram all these important details in with your ordinary, everyday tasks. One thing I do want to say to you, no matter how many things you have to do, please be very sure to look after yourself in these pre-wedding days, go to bed early and get a sufficient amount of sleep, take a certain amount of exercise every day, look after yourself and your complexion, so that when THE day dawns you will look as fresh as a summer rose, and all your friends will say of you: "How very beautiful she looked." It is worth leaving quite a few things undone to have that compliment paid to you on your wedding day, and anyway you will find that your friends are only too happy to lend you a helping hand in order that you may accomplish all you have set out to do before the wedding bells ring for you.

What are you going to wear? As usual, and despite wartime conditions and rationing, the desire of every girl is to have a white wedding, and I do hope that you can manage this. Even if it means going without other things, do make an effort to be a white bride. It is the one day in your life that is going to be remembered above all others, and even if your wedding is going to be very quiet, and simple, you will be glad later that your frock was of gleaming white satin instead of perhaps a more useful but not so romantic two-piece suit.

Choosing your bridesmaids also requires careful thought. If the wed-

ding is a small one, then one bridesmaid will be sufficient, and it is usual for the bride to ask her sister or perhaps one of her closest girl friends to perform the duties of bridesmaid. A bride will be grateful on the day if her bridesmaid is a girl with plenty of commonsense, and one who does not lose her head, for there are so many things that the bride wants done at the last minute, and it is essential that the bridesmaid does not get flustered. The bridesmaids arrive at the church usually about 10 minutes before the bride, and it is the chief bridesmaid who holds the bride's bouquet during the ceremony.

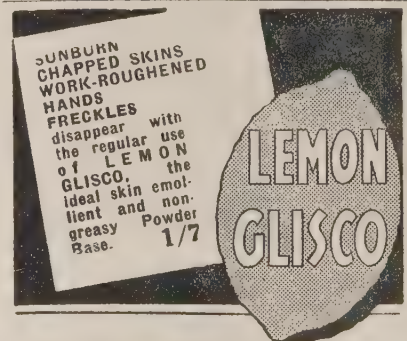
The question of flowers is one that must be carefully considered. Choose flowers that will tone in with the colour and style of frocks that are being worn, don't have the bouquets too large, and don't forget, Bride, to have a few "Trial spins" as it were in

Prayer for a Bride's House

She is so young, dear Lord, so very young,
She is so wide-eyed and naively sweet,
She does not dream of great rooms,
draped and hung
With master paintings, rugs where some queen's feet
Have lightly trod. She dreams of this instead:
A small, new house with freshly painted floors,
With hand-stitched curtains, and above her head
Bright dishes gleaming through wee cupboard doors.
She'll learn, some day, the value of old things,
When eagerness is stiff, and she is wise—
Knowing the disillusionment time brings—
But now there's so much springtime in her eyes,
And this is her first house—whate'er You do,
Let everything about it, Lord, be new!

front of your mirror when you are quite ready, so that you see just which way to hold your flowers to best advantage. Do you remember the old-fashioned custom of the bride throwing her bouquet as she left for her honeymoon, the story being that the girl who caught it would be the next bride? Surely a romantic custom, and yet I remember the pleasure that one bride gave to an elderly lady friend, who was ill in hospital at the time of the wedding—the bride herself took the bouquet to the hospital and gave it to her friend. The bridegroom pays for the wedding flowers, and do not forget to order a posy or spray for the mothers of the bride and groom. It is usual for the taxi to collect the flowers from the florist on the way up to the home of the bride. This ensures that they arrive fresh and in perfect condition. If you find it impossible to have a piece of real orange blossom in your wedding bouquet, then be very sure that you have a piece in the wreath that keeps your veil in place. For remember the old saying that goes, "Where the orange trees grow, there is Paradise."

The bridegroom as his right hand has the best man, and of course there are also groomsmen if the bride has more than one maid. The bridegroom



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usually pays for the flowers, the taxis, and also it is usual for him to give a gift to his bride on her wedding day, in addition to gifts for the bridesmaids.

I think the success or otherwise of a wedding, particularly the breakfast, depends upon the best man. He must be very reliable, for to him is entrusted the keeping of the ring until it is pro-

duced during the service. The best man usually officiates at the wedding breakfast in announcing the toast, reading the telegrams, etc. Also it is his duty to assist the bridegroom in the many details relating to the wedding service, such as arranging for the taxis, paying any church fees, and in arranging tickets, etc., for the honeymoon.

This Is Friendship

I love you, not only for what you are, but for what I am when I am with you.

I love you, not only for what you have made of yourself, but for what you are making of me.

I love you for the part of me that you bring out.

I love you for putting your hand into my heaped-up heart, and passing over all the frivolities and weak things that you cannot help seeing there, and drawing out into the light all the beautiful, radiant things that no one else has looked quite far enough to find.

I love you for ignoring the possibilities of the fool in me, and for laying firm hold of the possibilities of good in me.

I love you for closing your eyes to the discords in me, and for adding to the music in me by worshipful listening.

I love you because you are helping me to make of the lumber of my life not a tavern but a temple, and of the words of my days not a reproach but a song.

I love you because you have done more than any creed could have done to make me happy.

You have done it without a touch, without a word, without a sign. You have done it by being yourself. After all, perhaps this is what being a friend means.

Are you wondering whether to have photographs? I say "Yes." Photographs will always serve as a very tangible memory of this happy day. It is usual for the photos to be taken after the ceremony and before the reception. But if you adopt this course, please make sure that your guests, waiting for you at the reception, are provided with some form of entertainment, such as a few vocal or musical items, because nothing spoils the enjoyment of the guests so much as a long wait after they arrive at the place where the reception is to be held before the bridal party arrives.

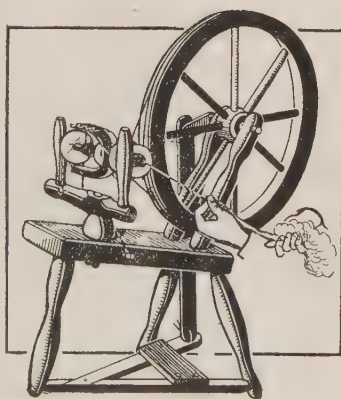
The parents of the bride receive the guests at the reception, the bride and bridegroom being nearby to receive the congratulations of their friends and relations.

After the breakfast, the happy couple usually change for the wedding trip, the bridesmaids assisting in this, and then they depart on the honeymoon, after being farewelled by their friends, who usually resort to playing a few practical jokes on the happy couple at this stage. Beware, Brides, of tins that rattle tied on the back of the taxi, or notices proclaiming that you are "Newly-weds." Talking, too, of practical jokes, I am reminded of some friends of mine who on arrival at the hotel where they were to spend their first night after the wedding found that they had no key to one of their suitcases. However, they retired to bed, and were at first astonished and later dismayed to find that the suitcase contained several alarm clocks, all set to go off at different hours during the night!

"From this day forward . . ." Now you are setting out on the most romantic and yet the greatest adventure of your life. If you keep always in the front of your mind those words you repeated at the marriage service, and strive to live up to them in every way, then your love will endure forever, and your marriage will have the true fairy tale ending "And they lived happily ever after."

"And do you know, it is a splendid thing to think that the woman you really love will never grow old to you. Through the wrinkles of time, through the mask of years, if you really love her, you will always see the face you loved and won. And a woman who really loves a man does not see that he grows old; he is not decrepit to her; he does not tremble; he is not old; she always sees the same gallant gentleman who won her hand and heart. I like to think of it in that way; I like to think that love is eternal. And to love in that way and then go down the hill of life together, and as you go down, hear, perhaps, the laughter of grandchildren, while the birds of joy and love sing once more in the leafless branches of the tree of age."—R. G. Ingersoll.

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Wedding Customs



THERE are so many wedding customs throughout the world that it would take a whole book to tell you all of them, but here are a few from here and there which may interest you, brides-to-be.

The custom of throwing confetti—a custom so disliked by church officials these days—goes back to Saxon days, when rose petals were used to strew the path of the bride and groom. Later there came the Chinese custom of throwing rice for luck, but as this custom grew unpopular with the years, it was later replaced by the custom of throwing confetti. And what sight is prettier than a newly-wed pair dodging and laughing in their efforts to avoid the showers of brightly-coloured confetti

Rosemary has long been carried by brides at their weddings, as an omen of good luck, and because it symbolises remembrance and enduring love.

I think the most picturesque wedding custom comes from a Slavonic state in what was once Austro-Hungary, a state called Moravia. These people have an old belief that if the bride takes a devious route from her old home to her new home it will mean that she will always take the long road to future happiness, and so risk missing happiness altogether. So the Moravians take coloured chalks, and mark out the shortest route to the new home, and the beginning of the pathway is decorated with the chalks so that it resembles a patterned carpet. Another curious custom of these folk shows us with what solemnity they view marriage. For they allow three days after the engagement so that the parents of the engaged couples may change their minds if they wish to. And on the third day the young man sends along a friend of his to find out if luck is still with him!

There is a curious custom followed in China. After the marriage, when the bride goes to her future home, she has to walk through a screen of smoke



before she enters. A large bowl full of straw is placed outside the door, and this is set alight when the bride arrives. By walking through this smoke screen the Chinese believe that all her past life is destroyed, and she is ready to start afresh in her new home.

So many age-old customs survive, although their origin is now long forgotten. To awake on her wedding morning to hear a bird singing is always a very happy omen, while if a bride discovers a spider anywhere on her clothes, it means that she will always be blessed with worldly goods.

Do you know the story behind the kiss at the altar? It is a very old story, and history tells us that once upon a time when it was usual to invite the blessing of the Church upon the serious decisions in life, if the couple had not enough money to buy a wedding ring, then they were betrothed when the man gave the woman a kiss in the presence of witnesses.

It is a rule throughout all British countries that the door of the church or registry office must be left open during the ceremony, so that any person who has a lawful objection is able to enter to lodge the protest.

So much for wedding customs. But just before I finish let me remind you of the age-old custom which is still observed by almost every bride even to-day, the little rhyme that goes:

"Something old, something new,
Something borrowed, and something blue."

Keep it in mind when planning your wedding outfit, and I am sure that happiness will be yours.

"Certain it is that there is nothing more lovely in all the world than the home light shining across the waste darkness, the last corner turned, and a light at the end of the road. Somebody there."—Gertrude Ramsay.

For a Small House

House, you needn't be pompous or tall,
Broad of your chimney, or mighty of wall,
To hold the loveliest things that are:
Peace that blossoms like a white star;
Dear words that sing after they're said,
And laughter taken with meat and bread.
Beauty cherished with uncommon care.
A child at play, and a child's prayer.
And, O house, you needn't be more than
tiny
For true love to make you breathless and
shiny!

—L. V. Emans.



"A woman who creates and sustains a home, and under whose hands children grow up to be strong and pure men and women, is a creator second only to God."—H. Jackson.

"The grand essentials of happiness are something to do, something to love, and something to hope for."—P. Chalmers.

"What is there worth while in life, what worth living for but love? And the sweetest and best of all is what we find at home."—Marion Cran.



ON THE BLUE HORIZON...

Skies are grey now and dreary, but look ahead—the far horizon there is blue. That blue shall someday fill the midday heavens. Halcyon days will come again, bringing beauty back. Someday you will be out again under blue skies, your man at your side, feeling with a new intensity that life is warm and vibrant... with a new understanding for the beauty of simple, deep enduring things. Berlei beauty—under a war cloud now—will be back. Government standardization wisely conserves the precious fund of skill and material that Berlei beauty needs, for the war which must be

won, and won the hard way. But someday there will be no restrictions on our making the foundations you love. There are halcyon days ahead when we shall again be able to create for you the beauty now denied in a Berlei.

★ ★ ★ ★ ★ ★

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A TOAST TO THE BRIDE AND GROOM

"And now, ladies and gentlemen, I ask you to charge your glasses and drink to the health and lasting happiness of the bride and the groom!"

GLASSES clink, the atmosphere is electric with good wishes, and after the health is drunk, the strains of "For They are Jolly Good Fellows" fill the room. And how much happier is the occasion if that room is your own room. A reception at home means a lot more work and worry, but it counts a lot towards making her wedding day the day of your daughter's life, and that is worthwhile surely! Held in a hired hall, with strange waitresses and strange surroundings, there is often a feeling of something essential lacking at the wedding breakfast, so I would urge you, if you possibly can, to hold your wedding reception in your own home.

Perhaps you are fortunate in that you have a beautiful garden, and with the aid of some trestle tables and a marquee you can have your breakfast out of doors; but then so much depends on the weather, and perhaps it is safer to plan an inside reception. If you hold the reception at home it will necessarily mean that your list of guests is limited, but especially in war time your friends will realise that not everyone you would like to invite can be present, so ask just enough folk to fill your room comfortably, and then go ahead planning your breakfast.

Whatever you do, do not make your wedding breakfast too elaborate—it is not called for these days. Have plenty of sandwiches and savouries, a few trifles and sweets, cream cakes of course, jellies, and anything else your bride fancies. Let me help you with a few suggestions. First of all, sandwiches.

Mock Chicken Sandwiches:

Mix chopped hard boiled eggs with grated veal, season with salt, pepper and mushroom ketchup, rubbed together to a paste with butter.

Devilled Fish Sandwiches:

Mix chopped cooked fish with hard boiled egg. Moisten with cream, season with minced parsley and Worcester sauce.

Radish and Cheese Sandwiches:

Finely minced crisp radishes form the basis of these sandwiches. They should be washed and peeled, and be as young as possible. Wafer-thin slices of bread must be spread with whipped cream, and the cheese, and the radishes added in a layer between them.



Now for some savouries, but remember they must be piping hot!

Cheese Savoury:

1 oz. grated cheese.	4 slices toast.
1 teaspoon Anchovy sauce.	1 teaspoon vinegar.
1 teaspoon chopped parsley.	1 tablespoon butter.
	Pinch of cayenne.
	Little mustard.

Mix the ingredients together, heat, spread on toast, cut into small pieces, and serve.

Devils on Horseback:

Prunes, salt, cayenne pepper, bacon and toast.

Cut some very thin rashers of bacon in halves, remove all rind, and smooth the pieces out with the blade of a knife. Stone and drain some stewed prunes, stuff them with a blanched almond, roll a piece of bacon round each, fix with a toothpick, and put on small fingers of hot seasoned buttered toast, and bake in a good oven until the bacon is cooked.

Sweetbread Patties:

3 oz. cooked sweetbread.
1 tablespoon white sauce.
2 tablespoons cream.
1 oz. cooked ham.
Grated lemon rind.

Chop the sweetbread and ham very finely. Put them into a small sauce-

My Home

May nothing evil cross this door,
And may ill-fortune never pry
About these windows; may the roar
And rains go by.
Strengthened by faith, these rafters will
Withstand the battering of the storm;
This hearth, though all the world grow
chill,
Will keep us warm.
Peace shall walk softly through these
rooms,
Touching our lips with holy wine,
Till every casual corner blooms
Into a shrine.
Laughter shall drown the raucous shout;
And though these sheltering walls are
thin,
May they be strong to keep hate out
And hold love in.

—Louis Untermeyer.

pan with the sauce, and stir over the fire till well mixed. Season to taste with pepper, salt, grated lemon rind, lemon juice, and a pinch of nutmeg. Pour in the cream, and see that the mixture is thoroughly hot before putting into the already baked pastry cases.

Now I am sure you all have your favourite recipes for jellies and trifles, but here are a few that you may like to try too.

Rubies Under Snow:

2 tablespoons sago.	2 teacups water.
2 packets raspberry jelly.	

Soak the sago in water, and cook until quite clear. Let cool slightly, then add jelly, and if not a rich scarlet colour, add a little cochineal. Pour into small glass dishes, and when cold cover with whipped cream.

Peach Souffle:

1 breakfastcup peaches which have been put through a sieve.
1 tablespoon lemon juice.
1 cup cream.
1 packet peach jelly.

Soak jelly crystals in a teacup of cold water for $\frac{1}{2}$ hour, and heat with sieved peaches until dissolved, add lemon juice, and leave until nearly cold. Whip cream, add to mixture, beating well, and leave to set in mould.

Coffee Souffle:

$\frac{3}{4}$ pint strong coffee.	$\frac{1}{4}$ pint milk.
3 eggs.	$\frac{1}{4}$ packet gelatine.
$\frac{4}{5}$ oz. sugar.	Vanilla.

Put made coffee with milk, half the sugar and gelatine in a double saucepan. Beat up yolks of eggs with rest of sugar, pinch of salt, and stir into the coffee. Whisk egg whites to stiff froth. When the coffee mixture thickens take it off the fire (it must not boil) and add white of egg, and

vanilla to taste. Pour into wet mould, and set aside to cool. Serve with whipped cream.

You must see that you have plenty of cakes, and lots of cream in them too! I am not going to give you many recipes for cakes—remember, though, that meringue cakes are always popular. Remember, too, to have a few plates of plain cakes on the table, for some people do prefer a plain cake just to finish up with. But I have one choice recipe for you here—I know you'll want it, brides-to-be!

Orange Blossom Cakes:

6 tablespoons butter.	$\frac{3}{4}$ cup sugar.
$\frac{1}{2}$ teaspoon almond essence.	$\frac{1}{2}$ cup cold water.
$1\frac{1}{2}$ cups flour.	2 tablespoons cornflour.
$2\frac{1}{2}$ teaspoons baking powder.	2 egg whites.

Cream butter and sugar, add essence. Sift flour with cornflour, and baking powder three times. Add to butter and sugar alternately with water. Fold in beaten egg whites, and bake in patty tins.

For the icing take 3 tablespoons butter, 2 cups icing sugar, grated rind and pulp of 1 orange, and 1 egg white. Cream the butter and sugar, add orange juice and pulp, mix well, fold in beaten white. Spread over cakes, and sprinkle with grated rind, so that the rind looks like flowers.

When it comes to the wedding cake, if you want to make it yourself do so by all means. Be sure to make it a few weeks before the event so that it won't be too crumbly to cut, and do send it to a bakery to be iced. Icing a cake is an art in itself, and a wedding cake deserves the best decoration. Sometimes the bride likes a vase of flowers on the top of the cake, and if you do this, be sure that it is a dainty vase. When it comes to cutting the cake, remember that after the bride has inserted the knife and cut one slice the cake is handed to the bridesmaid, who cuts it into small pieces, and sees that every guest has a piece.

Toasts these days are not so many as in the olden days. It is usual to commence with a toast to the King, and then one to the bride and groom, and also the bridesmaids of course. Nowadays the toast to the parents of the bride and groom is sometimes omitted, but I think that it is a happy gesture to honour this toast.

Claret Cup:

Put a bottle of claret into a jug, add a wineglassful each of sherry and brandy, the thinly peeled rind of a lemon, and 2 oz. sugar. Stir occasionally until the sugar has melted, then add a spray of verbenas, or a slice of tinned pineapple (if you have it!). Leave for two or three hours, then strain. Chill on ice, and just before serving add a bottle of iced soda water.

Always serve tea or coffee during the breakfast, and be sure to have soft drinks on the table too. Because of the difficulty in procuring suitable fruit I have omitted to add fruit salad to this menu, but of course if you can make fruit salad so much the better.

Dishes of salted peanuts, sweets, chocolates, muscatels, and cigarettes here and there all help to make the table look festive. Floral decorations can be most effective at a wedding—try scarlet roses against a snowy white cloth

"Here's health and happiness!" Start them off well with the wedding breakfast they will never forget, and I am sure that it will go a long way towards setting the pair on a road to happiness down the years ahead.

"Shall we make love
Indoors

On this night when the moon
has begun to shine
Over the rushes
Of Inami Moor?"

—Arthur Waley.



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~ Fun at the Kitchen Tea ~

YOU are going to be chief bridesmaid—and how thrilling that will be! And one of your chief tasks will be that of giving your bride a gift tea. These teas are ever so popular nowadays, and what fun they can be! I have been to many of them—gift teas, bathroom teas, pantry teas, even handkerchief teas or china teas—but the most fun of all are those kitchen teas when every guest comes along with some useful gadget for the kitchen. And, of course, the gifts must have a rhyme attached, for the rhymes are half the fun!

A recipe book is always a good gift, and here is a rhyme to go with it:

"You may live without love—what's passion but pining?

But show me the man who can live without dining.

You may live without poetry, music and books,

But where is the man who can live without cooks?"

And, of course, a recipe book must have a recipe in it, too:

"Take a day at a time, and break it into life's golden mixing bowl, stir in some joy and laughter, and a pinch of self-control. Sift in some kindly actions till the mixture is smooth and

light, and add a little prayer at eventide, then your years will turn out all right."

What about a rolling pin for your gift?

"It doesn't seem romantic,
And it doesn't look too good
To bring along to you to-day
A common piece of wood.
Still, if you find in cooking
It isn't any use,
You may perhaps require it
If Hubby goes out on the loose."

I think one of the biggest laughs ever raised at a kitchen tea was caused by this verse which was attached to a common wooden spoon.

"This is to ensure that—
When your sisters are in the dining-room,
Your mother-in-law in the drawing-room,
The maid in the bedroom,
The plumber in the bathroom,
And it's raining outside—
You can always have
A spoon in the kitchen!"

A cup and saucer is always welcomed by the bride-to-be, and she will welcome the sentiment in this verse, too:

"When you fill me,
So may the cup of joy for you
Be filled with hopes and dreams
come true,
A lot of love to make it sweet,
And milk of kindness to complete."

Did I hear someone say that they had a cake tin as a gift? Well, here's the rhyme for you:

"Of all the things that you may get
To cook and brew and bake,
I think you'll find this takes the bun
Because it takes the cake."

And for a fish slice use this:

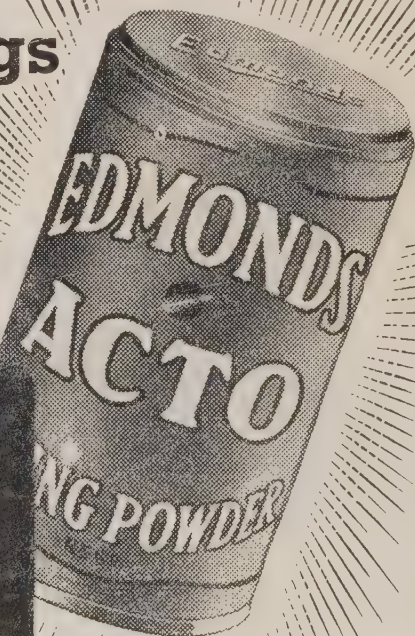
"When you've planned a tasty breakfast,
And the menu just says 'Fish,'
Here's a slice to help you take it
From the pan into the dish."

All these rhymes are so simple, and I am sure that with a little bit of brain-work you could compose such rhymes yourself to suit your gift for the tea. But when sending out your invitations, remember to tell the guest that you want a rhyme attached, and most of them will turn up with one. Just use these I have given you as a stand-by in case some of the gifts come along without a rhyme. And you'll be surprised at the fun they make!

To prevent the inside of your aluminium teapot from getting that tannin flavour, rub the inside once a week with half a lemon which has been dipped in salt.

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that everyone enjoys,
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ACTO
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WHEN THE WORLD SAYS GOOD-
 BYE TO *Blackout Blues*

When the lights of the world shine again - - - when victory brings plenty - - - then once again you will share in the good things of life. Until then the Onehunga Mills are weaving for war, and only limited quantities of Onehunga products may be released for civilian use. To-day it is our privilege to supply Onehunga blankets and woollens to those who need them most—on active service. When victory is won it will be your pleasure once again to invest in the quality of Onehunga products. Meantime, rest assured that available stocks are being allocated with strict fairness and that your usual store is obtaining its proportionate quota.

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 BLANKETS — ONEHUNGA TRAVEL
 RUGS — ONEHUNGA WOOLLENS.

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First Prize:

HOLIDAY memories, and what happy ones! London, France, Switzerland, Italy—three perfect weeks of cloudless weather, and a dream that came true. All that remains now are some photographs, a few pieces of pottery, a tiny statuette, and pictures that can be conjured up at will as vividly as colour snapshots on a screen.

London! The smoky dimness of Victoria Station on a warm summer afternoon; the grey backyards of London's slumlands; the leafy orchards of Kent, and finally Folkestone, with the grey Channel beyond. France! The wild scramble through the Customs house at Boulogne; the train with its little lace antimacassars on the seat backs, and great baskets of peaches being handed in through the carriage window. On we went through the valley of the Somme with its gently swelling hills, its tiny patches of cultivation, and here and there a blasted tree trunk, grim reminder of 1916. Into Switzerland with its narrowing valleys, trim pine trees and snow-capped mountains. The excitement of the English passengers puzzled us till we realised that they had not seen a mountain before.

From the cold austerity of a Swiss mountain valley we passed through fifteen minutes of dark tunnel into the brilliant skies and sunshine of Italy, and so to Lugarno, with its blue lake, white buildings, and lime-shaded avenues. Then followed days of clear beauty, and nights of warm scented darkness, with so much to do, and so much to see. There were days when we bathed in the warm waters of the lake, swimming to the channel buoy, and rocking lazily in the wash of the little lake steamer as she went by; there were nights at the Casino with music, laughter, and lovely women; there was the lake itself outlined in lights, the water reflecting the coloured lanterns of the little boats as they skimmed across it; snatches of song; the twang of a guitar—a veritable fairyland to a visitor from our young, less sophisticated country. There were afternoons in the cool shopping arcades, with their picturesque crowds, and tiny donkeys tripping daintily over the cobbles. Here we saw macaroni and spaghetti in every imaginable form and shape. A visit to the cathedral showed us funeral wreaths as large as an average-sized kitchen table;

HOLIDAY MEMORIES

WHAT joyous recollections of happy holidays you have shared with me! I feel I have holidayed myself in all parts of the world after reading your memories, and I know you will all enjoy the enchanted holiday that "X.Y.Z." of Okato, shares with us. Thank you, "X.Y.Z.," for taking us with you on your unforgettable holiday. Second prize goes to "Maritza," of Gisborne—her holiday memory brought us nearer home, but what a happy time she had nevertheless!

a walk down a back street revealed meat being cooked on an ancient revolving spit; there were courtyards with tiny balconies where Romeo might have talked with Juliet. One night was spent dancing on a stone floor in the moonlight, in a strange little cafe overlooking the lake. We were never to see it in daylight, but it was covered with grape vines, and smelt of garlic.

We visited a Franciscan monastery, perched on a mountain like an eagle on its nest, and after a sharp walk up past the Stations of the Cross we arrived at a door over which no woman's foot must pass. The one exception is the chapel, which was full of little dark-eyed peasant children, learning their lessons from the brown-robed monks.

Sometimes we went further afield. Once it was through miles of mulberry groves to the city of Milan and its cathedral, with its forest-like dimness, its screens of flickering candles and its calm-faced saints and Madonnas before whom dark-veiled women were kneel-

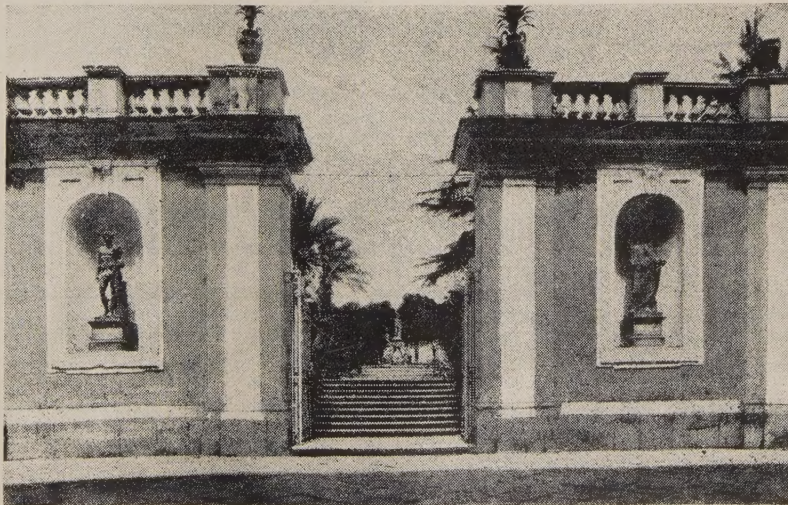
ing. We went to Isola Bella with the blue waves washing its marble staircases, its flower-decked terraces and white peacocks, and its strange palace filled with what the critics tell us is bad art. Another day saw us at Lake Como, more lovely still, lying shimmering in the noonday sun, its waters stretching out to the white villas of Bellagio. Looking down on it all is the Villa Carlotta, with its art treasures, its cool fountains and its balustrades of tumbling roses and bougainvillea. Its gardens are a dream of beauty—the perfect setting for the Decameron.

There was much to see, but back we came from Italy on a night journey to Paris. Three bewildering days followed, days of movement and excitement. We saw Notre Dame with its hideous gargoyles and lovely rose windows; we travelled on the underground railway, and had the nightmare feeling that the train would never stop long enough to allow us to get off. We drove in mad, hurrying taxis; we had a tour through the city in a char-a-banc, complete with blaring megaphone and shouting conductor, but we felt infinitely safer that way. We went to the Louvre, and stood with constricted throat before the Venus de Milo, awed into silence by its beauty; we joined curious crowds gazing at the Mona Lisa. We saw the Bois de Boulogne with the lights of its lakeside cafes twinkling through the dusk of a summer evening; and were spell-bound by the amazing vastness of the palace of Versailles, its gardens and its tiny bedroom with the pathetic, brown-stained mirror that once reflected the lovely face of Marie Antoinette.

And so back again to Calais and London, having gathered a lifetime of happy memories.—**X.Y.Z., Okato.**

Second Prize:

WAIKAREMOANA, "Lake of the Rippling Waters"—how I love it! My happiest holiday memories are filled with the music of the tui, the soft whirring of wild pigeons' wings, and the tantalising "plop" of a rising trout. Of all the holidays I have spent by the lake, one month stands out like a jewel—for all of March we had perfect weather, and with a 16-foot boat and an outboard motor, we camped at the far end of the Lake. Our days were filled with joy and laughter. We swam in soft clear water, explored all the little bays and inlets around the shore,



had meals when the spirit moved us, and felt very far removed from the world. When dawn flushed the sky, we would creep round the edges of the bays where the big brown trout cuddle the shore, and the early mists of morning would slowly dissolve as the sun rose. Sometimes we would land a gleaming fish, and go back to our camp for a royal breakfast. Is any smell so fascinating as wood smoke in

Competitions

March:

Don't forget our competition for next month—I am expecting to receive ever so many really worthwhile suggestions that are going to help mothers all over the country. Remember the subject? It was "Keeping them amused on wet days." Entries close on April 15th, so be in time.

April:

How true it is that the children of today are the men and women of tomorrow! What sort of men and women are your children going to grow up to be? Are you training them wisely, so that they will make good citizens in the world of tomorrow? Wise parents realise that their responsibility towards their children is indeed a big one—are you a wise parent in this respect? We owe so much to our growing children, they are indeed a precious heritage. Let us share your ideas on the subject for this month, in the hope that they will help towards making the rising generation into finer men and women.

"WHAT ARE THE ATTRIBUTES OF WISE PARENTHOOD?"

Make a note of the closing date—May 15th—and there are two prizes, one of 10/- and one of 5/-.

"MARY,"

C/o "Journal of Agriculture,"
P.O. Box 3004,
Wellington.

the early morning, any sound so appetising as the sizzling of trout frying? I have been at the Lake at Christmas time, when the blood red rata tumbles down to the shore, and the wild cherry trees are scarlet with fruit, and soft-breasted pigeons take their dessert from the branches, but best of all is the time of year that I have mentioned. Early frosts tingle the mornings and give a wild crispness to the air, and the deer are collecting for the mating season. It is a perfect spot, unspoiled and very, very lovely. The memory of that month by the "Lake of the Rippling Waters" will live forever in my mind, and today, when the world is so full of sorrow, it is good to think that there the wild ducks still fly, the

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pigeons whirr their soft wings, and the music of the tui is waiting for me when peace comes again.—Maritza, Gisborne.

WE spent the long week-end at New Year at a beach camp.

On New Year's Eve, we had a bonfire behind a hill on the green by the camp cookhouse. At 12 o'clock, as the New Year came bustling in, we linked hands in time-honoured fashion and sang "Auld Lang Syne," "Land of Hope and Glory," a favourite hymn or two, and "The King." Then a Maori boy arrived with a big steel guitar, and struck up the stirring "Maori Battalion"—and the way the crowd (about 300 of us) took it up! Never had we heard such a wonderful pouring forth of pent-up emotions, such a spontaneous surge of harmony in such weird surroundings, with the plaintive sound

of the steel guitar and the breaking of the surf on the beach for accompaniment, and now and then the lonely cry of some wild creature in the dark remoteness of the bush-clad hills opposite. And above us, the lovely mystery of the night, and the stars seeming to blink at us so wisely and compassionately from the deep blue velvet dome of the heavens. Such insignificant little midgets we must have seemed to them, yet doubtless each of us so important to himself! Strange to think of so many of our dear ones far away across the sea—and of the many, alas! who would never now return—and I know we all sent up a heartfelt prayer that when the next New Year dawned, a universal peace might be very, very near and our loved ones home with us again.—

A. M. Dowell, Taranaki.

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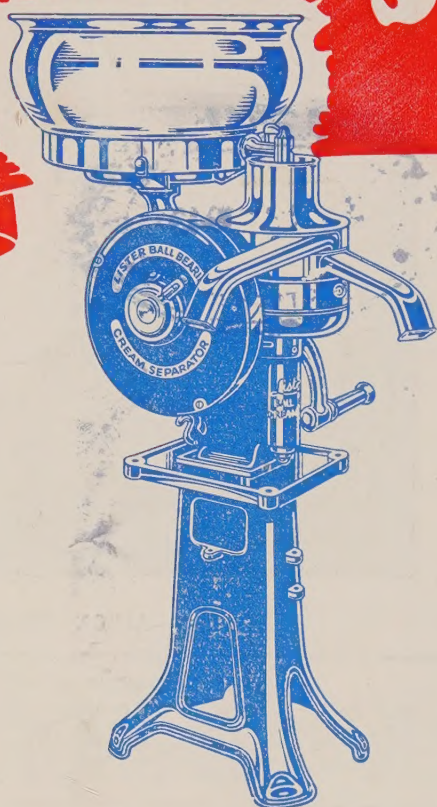
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